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THESIS

CAREER INTENTIONS OF JUNIOR UNRESTRICTED LINE NAVAL OFFICERS

by

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March, 1997

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The purpose of this thesis was to investigate the factors affecting the career intentions of junior unrestricted line (URL) naval officers. Data were taken from the *1992 DoD Survey of Officer and Enlisted Personnel and their Spouses* and were matched with the 1996 Active Duty Military Master File by the Defense Manpower Data Center. The sample was restricted to Navy URL officers in pay grades O1-O3, within their minimum service requirement. The data were divided into three sets: single male officers, married male officers, and female officers. A conceptual model was developed which grouped explanatory variables of career intentions into three broad categories: personal, internal work related, and external work related. A multivariate logistic model was estimated for each data set to determine the relative importance of these variables on an individual's intent to make the Navy a career. Results indicated that the factors influencing career intentions differ between male and female officers and married and single officers.

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CAREER INTENTIONS OF JUNIOR UNRESTRICTED LINE NAVAL OFFICERS

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ABSTRACT

The purpose of this thesis was to investigate the factors affecting the career intentions of junior unrestricted line (URL) naval officers. Data were taken from the *1992 DoD Survey of Officer and Enlisted Personnel and their Spouses* and were matched with the 1996 Active Duty Military Master and Loss File by the Defense Manpower Data Center. The sample was restricted to Navy URL officers in pay grades O1-O3, within their minimum service requirement. The data were divided into three sets: single male officers, married male officers, and female officers. A conceptual model was developed which grouped explanatory variables for career intentions into three broad categories: personal, internal work related, and external work related. A multivariate logistic regression model was estimated for each data set to determine the relative importance of these variables for an individual's intent to make the Navy a career. Results indicated that the factors influencing career intentions differ between male and female officers and married and single male officers.

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I. INTRODUCTION

A. BACKGROUND

One of the United States Navy's most crucial assets is its personnel. The ability to maintain a professional, highly trained force of the proper size and occupational composition is vital to mission success. The retention of qualified, eligible personnel at all levels is the key to a formidable national defense.

The 1996 Department of the Navy Posture Statement includes the following statement regarding retention:

> As the draw down and right sizing of the force nears its conclusion, we must redouble our efforts to retain high caliber people. Maintaining adequate retention levels not only ensures high readiness levels through retention of highly trained, critical skill personnel, but also eases the pressure on our recruiting force by lowering the yearly accession requirement. (Ref. 1, p. 23)

The Navy desires to ensure force readiness in the near term by protecting quality people on board, maintaining sufficient accession levels to preclude a "hollow force" in the future, and managing officer accessions and retention to maintain the correct grade/quality mix to ensure long-term readiness. (Ref. 2)

Continuing advances in technologically complex weapons, sensors and systems require naval officers to complete more detailed and more costly initial and specific training. This training is fundamental to overseeing the operation and maintenance of these systems and supervising the enlisted personnel who perform system related tasks. As officer training costs increase, the cost of replacing these officers also increases.

Additionally, the Navy does not normally accept lateral entry into its organizational system. Personnel are recruited at the lower entry levels and advance by promotion to positions of greater authority and responsibility.

In order to meet manpower requirements, the Navy must be able to predict the retention levels of junior officers. If the significant factors that affect an individual's decision to remain on active duty are known, policy initiatives can be aimed directly at those factors.

B. OBJECTIVES

The factors that influence an officer to leave or stay in the Navy include demographic characteristics, satisfaction with the military lifestyle, career opportunities and security, family status, and others. This thesis analyzes recent survey data in an attempt to identify specific factors that affect the career intentions of qualified junior officers. Knowledge of the major influences on the career decisions of junior officers will enable policy makers to develop effective strategies for improving retention.

C. THE RESEARCH QUESTION

The primary research question is to assess the factors that influence a junior officer's decision to remain in the Naval Service or to pursue a civilian career. Additionally, this thesis attempts to determine the relative importance of these factors for an officer's career decision.

Earlier models (Ashcroft, '87) lacked sufficient data to assess career intentions differences due to race and gender. This study lacks sufficient data to analyze race/ethnic groups, however, separate gender groups will be included in the analysis. The effect of recent down sizing in force structure and voluntary retention will also be investigated.

D. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The primary thrust of this thesis is to examine extrinsic, intrinsic, and personal factors affecting the career intentions of qualified junior Naval officers and, in addition, to identify differences in intentions due to gender. Another factor that is examined is the effect of the recent draw down on an officer's career intention. This thesis looks at junior unrestricted line officers in pay grades 0-1 to 0-3, who are serving in their initial obligation.

This thesis uses logistic regression and factor analysis techniques on data taken from the 1992 DoD Survey of Officer and Enlisted Personnel to assess the factors that influence junior, unrestricted line officer's career intentions. One of the survey questions asked respondents what they believed would be their highest rank attained while in the service. A metric for career intentions may be developed from this question categorizing an officer as a *careerist* or a *non-careerist*. Logistic regression analysis is utilized to determine the effect of other survey responses (extrinsic, intrinsic, duty history, job/family security factors) on a respondent's choice to remain in the service or not. Additionally, actual retention data from the Defense Manpower Data Center (DMDC) were used to create a matched member file for respondents of the 1992 survey. This data is utilized to measure the usefulness the model.

E. ORGANIZATION

The remainder of this thesis is organized as follows: Chapter II provides a review of prior studies and appropriate literature on turnover research and career patterns. Chapter III provides a description of the data set used for model development and preliminary data analysis. Chapter IV discusses methodology, model development, and

variable selection. Chapter V presents the results of the regression analysis. A comparison of final model with matched data to determine the overall effectiveness of the model is also provided. Chapter VI presents conclusions, limitations, implications, and areas of future research.

II. LITERATURE REVIEW

A. BACKGROUND

This thesis focuses on the career decisions of junior, unrestricted line officers. When an officer is commissioned, he or she incurs a specific period of obligated service. This usually ranges from four to seven years. At the end of this obligated service, an officer can do one of three things: (1) continue to remain on active duty without incurring any further obligation, (2) leave the active force and join the reserves, or (3) leave the Naval service altogether.

Pearson defines turnover as "the leaving behavior of employees when they sever their association with the organization [Ref. 3]." Turnover can further be classified as voluntary or involuntary. [Ref. 4] Mobley et al. contend that the distinction between voluntary and involuntary turnover is a troublesome issue. The bulk of turnover research focuses on voluntary turnover, though precise definitions of voluntary turnover are infrequently given. [Ref. 5] For the purpose of this thesis, voluntary turnover will be defined as turnover initiated by the individual. Involuntary turnover will be defined as any turnover process initiated by the organization, i.e. early retirement or separation.

Few areas within industrial/organizational psychology have received as much attention as employee turnover. Since the early 1900's there have been literally hundreds of qualitative and quantitative investigations of turnover. [Ref. 6] Many factors have been analyzed to determine their relationship with turnover. These include individual background and demographic factors, personal characteristics, job/career characteristics, social environmental factors at work, social environmental factors non work (family),

organizational characteristics and practices, job performance and evaluations, internal and external economic factors, and behavioral intentions. [Ref. 7]

B. CIVILIAN TURNOVER RESEARCH

Organizations invest substantial resources in their employees in the form of training, salaries and benefits. Corresponding costs to the firm when employees quit and the subsequent hiring of qualified replacements can be significant, not only from a financial view, but from an organizational management view. [Ref. 8]

Early work by March and Simon serves as a major underpinning of literature on voluntary employee turnover. They proposed that turnover results from an individual's perception about desirability of movement from the organization (satisfaction) and their perception of the ease of movement to a new job (alternatives). The individual's decision to leave the organization depends upon the interaction of these two components. Job satisfaction is determined by the individual's perceived "fit" within the organization, the predictability of job relationships, and by the compatibility of the job and other roles. Perceived alternatives is a function of the number of organizations visible to the individual and personal characteristics of the individual. [Ref. 9]

Mobley, Griffeth, Hand, and Meglino [Ref. 5] conducted a comprehensive literature review and found that age, tenure, overall satisfaction, job content, intentions to remain on the job, and organizational commitment are consistently and negatively related to turnover. However, less than 20% of the variance in turnover is explained with just these variables. They contend that lack of a clear conceptual model, failure to consider job alternatives, insufficient multivariate research, and infrequent longitudinal studies are

factors precluding a better understanding of the psychology of the employee turnover process.

Mobley, et al. developed a conceptual model of turnover that suggests that employee turnover and withdrawal is effected by satisfaction (present oriented), attraction expected utility of current role (future oriented), and attraction expected utility of alternative roles. Their approach is basically psychological and rests on the belief that turnover is an individual choice behavior.

Mobley, et al. suggest that intention to quit is considered to be the immediate precursor of turnover and therefore, the best predictor of turnover. There are two intentions of particular interest, intention to quit and intention to search for an alternative job.

The major weakness with the Mobley, et al. study is that it is a review of turnover literature and presentation of a conceptual model. No multivariate analysis was performed to validate the conceptual model.

Arnold and Feldman [Ref. 10] developed a multivariate model to analyze the turnover process and utilized it to analyze the turnover behavior of 654 accountants. They measured demographic variables, tenure, multiple measures of job satisfaction and organizational commitment, perceived job security, intention to search for an alternative position, perceived existence of alternative positions, and intention to change position. Additionally, they examined the relationship between intention to change jobs and actual turnover behavior, the interrelationships of intention to search for a new position, intention to change positions, perceived existence of alternatives, and actual turnover behavior, and finally the determinants of intentions to search for alternatives and intentions to quit.

The results of their analysis support the existence of significant relationships between the independent variables listed above and turnover (R=0.44). Turnover was significantly influenced by age, tenure, overall job satisfaction, organizational commitment, perceived job security, and intention to search for an alternative position. Turnover behavior was also more strongly related to intentions to search for alternative jobs (r=0.30) than to intentions to change positions (r=0.19).

Arnold and Feldman revised their original model based on the results of their analysis. The revised model treats intention to search for an alternative job as a function of age, job satisfaction, and organizational commitment. Turnover is treated as a function

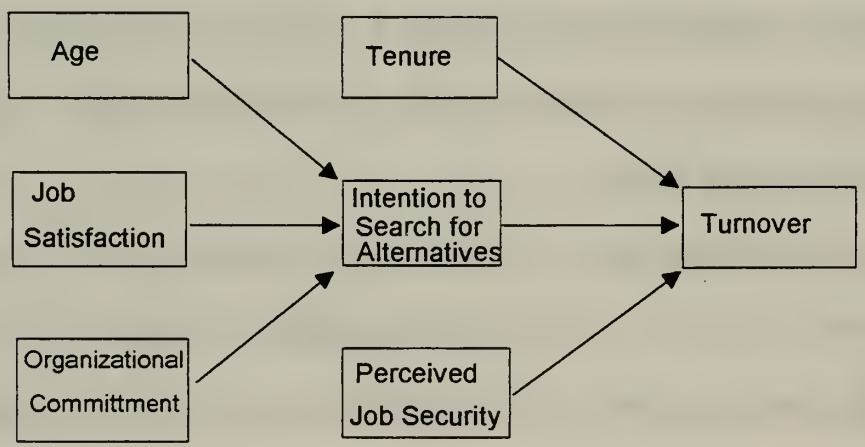


Figure 2.1. Revised model of turnover process (Source: Arnold and Feldman, p 359)

of tenure, intention to search for alternatives, and perceived job security (see Figure 2.1).

A potential weakness of the Arnold and Feldman study is that it involves only a single occupational group, accountants. The authors counterbalanced this homogeneity with geographical and organizational heterogeneity.

Dreher [Ref. 11] contends that the organizational consequences of turnover are linked to the performance level of the leavers. Limited literature suggests that leavers are predominantly better performers, however many of these studies were conducted in non-business settings and not within the context of any turnover models.

Dreher proposed that the relationship between voluntary turnover and performance is a function of two variables; the first concerns organizational reward systems, and the second focuses on the employer's ability to evaluate the employee effectively. He examined performance, potential, aptitude, and career advancement differences between employees who voluntarily resigned from a national oil company and those who continued in the organization.

Dreher tested the hypotheses: (1) stayers would receive higher initial performance appraisals than employees who would eventually leave the organization, (2) the initial job level of stayers would be higher than that of leavers, (3) job aptitude would be greater for stayers than leavers, (4) the rate of career advancement would be greater for stayers, and (5) performance evaluations associated with later career stages would be higher for stayers than leavers.

He found that within the organization studied that there was no indication that high performers leave more often that lower performers. There were small, but systematic differences associated with early career measures of performance, aptitude, and potential. Performance differentials increased with tenure in the organization. Stayers were promoted at higher rates than leavers.

Dreher cautions that these results were descriptive of a particular organization's experience and the role of performance as a determinant and consequence of voluntary turnover requires further study.

Cotton and Tuttle [Ref. 6] conducted a review of existing employee turnover literature employing meta-analytic techniques in 1986. Meta-analysis refers to the statistical procedures utilized to summarize the information they found in their review. Specifically, the authors utilized the counting method and the method of "Adding Z's" to condense their review.

Cotton and Tuttle used Pettman's (1973) categorization to classify turnover correlates (variables examined in prior studies) as (a) external factors, (b) structural or work-related factors, or (c) personal characteristics of employees. Table 2.1 lists the correlates of turnover examined.

Table 2.1. Correlates of Turnover

External correlates	Work-related correlates	Personal correlates
Employment perceptions	Pay	Age
Unemployment rate	Job performance	Tenure
Accession rate	Role clarity	Gender
Union presence	Task repetitiveness	Biographical information
	Overall job satisfaction	Education
	Satisfaction with pay	Marital Status
	Satisfaction with work itself	Number of dependents
	Satisfaction with supervision	Aptitude and Ability
	Satisfaction with coworkers	Intelligence
	Satisfaction with promotional opportunities	Behavioral intentions
	Organizational commitment	Met expectations

Source: Cotton and Tuttle, p 57

The following external factors were found to be positively related to turnover: employment perceptions and accession rate. Unemployment rate and union presence were negatively related to turnover. Only one work related variable, task repetitiveness, was found to be positively related to turnover. The other work related variables: pay, performance, role clarity, overall satisfaction, pay satisfaction, satisfaction with work itself, satisfaction with supervisor, satisfaction with coworkers, satisfaction with promotion, and organizational commitment, were found to be negatively related to turnover. The following personal variables were negatively related to turnover: age, tenure, number of dependents, marital status (married negative), and met expectations. The personal variables education, intelligence, behavioral intentions, and gender (women positive) were positively related to turnover.

The authors caution that their review and regression analysis are only exploratory in nature. Results of the regression analysis may be biased due to the variety of sample sizes. The regressions are also based on small sample sizes, reducing the likelihood of significant findings or resulting in inappropriate findings. However, the meta-analysis did confirm the conclusions made in many of the publications reviewed.

Lee and Mitchell [Ref. 8] introduced an *unfolding model* of voluntary employee turnover in 1994. They contend that earlier research can be classified as either a "push" or a "pull" theory. A "push" theory focuses on job-related perceptions and attitudes and is basically psychological in nature. A "pull" theory is based on concepts external to the employee and is generally studied by market-oriented researchers.

The unfolding model of turnover incorporates concepts and constructs from both market-pull and psychological-push approaches. The theory also describes conditions

when neither of these approaches is applicable. Four decision paths involving both psychological and external events are explained utilizing the unfolding model.

Lee and Mitchell use image theory to describe the general turnover process. An event or "shock" to the system causes a person to pause and think about the meaning of the event in relation to his or her job. A shock is defined to be a very distinguishable event that jars employees toward deliberate judgments about their jobs and possible voluntary turnover. Four decision paths based on the shock and resulting interpretation by the employee are described.

Decision path one is characterized by a shock to the system and employee reaction based on prior experiences. This decision is based on a "match" with a previous decision or rule from a prior shock. It does not involve the evaluation of job alternatives or consideration of job dissatisfaction.

Decision path two involves a shock to the system that causes an individual to reassess his or her attachment or commitment to the current organization. The employee evaluates the shock based on his or her values and goals. If the shock can be integrated or "fits" the employees goals and values, he or she will remain in the organization. If his or her judgment does not fit, he or she will leave the organization without consideration of alternative job opportunities.

Decision path three is similar to decision path two except that the employee considers specific alternative employment opportunities. These alternatives cause the employee to focus on whether or not he or she could form a commitment with an alternative employer rather than reassessing his or her commitment to the present

employer. If the alternative opportunities are more attractive, the individual will leave. If his or her current position is more attractive, he or she will stay.

In decision path four, there is no shock. Organizational life evokes few distinguishable events and, over time, employees feel they no longer fit the organization because they are not meeting their goals. If the employee experiences a lot of job dissatisfaction, he or she simply quits. Other employees will follow a more traditional turnover model in which they consider alternative employment opportunities.

In 1996, Lee, Mitchell, Wise, and Fireman [Ref. 12] conducted a test of Lee and Mitchell's unfolding model of voluntary turnover. The study was designed to test the essential features of the decision paths, not focus on comparing stayers and leavers. The researchers interviewed forty-four nurses who had voluntarily quit their nursing jobs.

The unfolding model suggests new and different ways to conceptualize the turnover process. Fifty-five percent of the cases could be explained by traditional turnover theories, i.e. dissatisfaction followed by a job search, evaluation of alternatives, and subsequent quitting. Forty-five percent of the sample reported quitting their jobs with no alternative job opportunities.

Fifty-eight percent of the sample reported a shock as having an effect on their decisions to quit. Although the authors conceded that considerable research needs to be done on shocks, they contend the present study does provide empirical information on the types of shocks and their association with particular decision paths.

The unfolding model challenges conventional turnover theory. The data suggest that not only affective factors prompt the quitting process. Further, many individuals do not require an alternative employment opportunity before quitting. Finally, mismatches

among employee goals, values, and behavioral strategies and the organization appear to be potent issues in the turnover process.

Bhagat, McQuaid, Lindholm, and Segovis [Ref. 13] studied the effects of stress on organizational withdrawal behaviors for full-time, white collar workers. Bhagat, et al. made a distinction between positive life stress (e.g., disruptive pleasure for the individual), and negative life stress (e.g., events placing excessive demands on the individual).

Results showed that negative life stress was associated with work dissatisfaction, lack of organizational commitment, and employee withdrawal and turnover. Positive life stress was associated with an intention to remain in the organization.

C. MILITARY TURNOVER RESEARCH

Military personnel turnover may involve a different process than civilian withdrawal due to dissimilar structural relations among turnover causes. [Ref. 14] The Navy Personnel Research and Development Center [Ref. 15] developed a predictive model of junior Surface Warfare Officer (SWO) retention beyond minimum service requirement (MSR) using data collected from a career development questionnaire. The model tested theoretical relationships among organizational commitment and career intent and whether the officer remained on active duty or not. Multiple regression using a stepwise inclusion criterion was used to determine relationships between predictor variables and continuance on active duty.

Researchers concluded that career intent expressed by junior SWOs one to two years prior to MSR is the best single predictor available to forecast whether the officers will continue their career beyond their MSR. Junior SWO career decisions are influenced

substantially by their first sea tour experiences, perceptions of working environment, and professional development opportunities.

Derr and associates [Ref. 16] approached the officer retention question using the concept of "career anchors." Originally developed by Edgar Schein, the career anchor concept attempts to explain the development of one's career over time. Schein postulated that the early career (1-5 years) was a period of mutual study and discovery between employee and employer. Between the fifth and tenth year, the employee gains a clearer occupational self-concept. The metaphor of an anchor connotes composite needs, values, attitudes, and abilities of an individual which tie one to a certain kind of work history or career. It is in this way that an individual develops a "fit" with an organization.

This study utilized survey and interview data to test the career anchor concept on the Naval profession. The study is not causal in nature and was not meant to model career behavior. It merely provided further insight into the reasons for voluntary turnover.

Marsh [Ref. 17] utilized the data from the *1985 DoD Survey of Officers and Enlisted Personnel* to predict retention behavior. Multiple regression analysis revealed that the most important causes of retention intentions are months of active duty, the highest pay grade one expects to reach before leaving the Navy, and satisfaction with military way of life.

Marsh's causal model can be summarized as follows:

1. A duty history can be constructed for any Naval officer characterized by educational level, length of service, present duty location, and accumulated amount of sea time.

2. An individual has various expectations concerning next duty location, future promotion, eventual highest pay grade, etc.

3. Naval officers vary in family status, raising issues of the relationship between commitments to the Navy and commitments to family.

4. Duty history, expectations and family status influence how satisfied one is with the military way of life.

5. Aspects of this satisfaction have significant effects on retention versus leaving the Navy.

Marsh constructed a dependent variable from a survey question that asked respondents, "When you finally leave the military, how many total years of service do you expect to have?" He called this variable EXPYOS. Table 2.2 lists the explanatory variables and their effects on the dependent variable.

Table 2.2. Marsh's explanatory variables and their effects

Variable	**Variable Definition**	**Effect on EXPYOS**
EDUC	Highest grade or year of school or college credited	no significant
MAD	Months of Active Duty	positive**
PAYGRADE	Current pay grade	positive*
MOPRLOC	Number of months at present duty location	negative**
REMOLOC	Number of months remaining at current duty location	no significant
MOSEA	Accumulated months of sea time	positive*
MOSEP	Number of months separated from spouse/family in last year	no significant
AGCAREER	How well spouse and member agree on career plans	positive**
FAMCIV	Family would be better off if member had civilian job	positive**
FEELINC	Satisfaction with family income	no significant
EXPGRADE	Highest expected pay grade	positive**

Table 2.2. Marsh's explanatory variables and their effects (cont.)

Variable	Variable Definition	Effect on EXPYOS
CHNXPROM	Chances of being promoted to next pay grade	negative**
NXTUND	Chances that next duty station will be undesirable location	no significant
CONTED	Extent to which PCS is a problem to continuing education	negative**
SERVEUS	Satisfaction with opportunity to serve country	positive**
JOBSAT	Satisfaction with current job	positive**
RETBEN	Satisfaction with retirement benefits	positive**
MILSAT	Overall satisfaction with military life	positive**
FINDCIV	Likelihood of finding civilian job	no significant

* significant at the 0.05 level
** significant at the 0.01 level

Source: Marsh pp. 4, 18

The author concludes that the most important causes of expected years of service are months of active duty and the highest expected pay grade one expects to attain. Worth noting is the effect that an officer's present pay grade has on expected years of service (significantly negative). The author explains that this may be due to the perceived constriction of promotion as an officer ascends through the ranks. Even controlling for the effects of months of active duty, current pay grade and expected highest pay grade, the total expected time an officer expects to remain on active duty is longer when he or she is satisfied with the military as a way of life.

In another study of turnover in the military, Ashford, Lee, Walsh, and Mowday [Ref. 18] investigated the effects of commitment propensity on the development of

subsequent organizational commitment and voluntary turnover. Commitment propensity consists of personal characteristics, expectations, and organizational choice factors.

The study was a four year longitudinal investigation among cadets at the US Air Force Academy. Survey questionnaires were administered to an entering class of cadets six times over an eighteen month period. Turnover data were monitored for the entire four years that the group of cadets attended the academy.

Survey questions were designed to measure commitment propensity (desire for an Air Force career, familiarity with the military, self-efficacy, self-confidence, volition of choice, and sacrifice in choice), organizational commitment, and utility of feedback. Two sets of analyses were conducted. Linear relationships and mean differences were analyzed and dynamic and nonlinear relationships were analyzed using survival analysis.

Each of the study's empirical hypotheses was supported. Commitment propensity, measured prior to organizational entry, was positively related to initial and subsequent organizational commitment and to perceived utility of organizational and task feedback. Initial commitment, in turn, was positively related to subsequent organizational commitment, the perceived utility of organizational and task feedback, and the probability of survival. The perceived utility of organizational and task feedback was also found to be both predicted by and predictive of organizational commitment.

The authors also found that organizational commitment predicted voluntary turnover. Survival analysis documents the dynamic relationship between initial commitment and voluntary turnover. For a one standard deviation increase in initial commitment, the probability of voluntary turnover decreased by approximately 66 per cent, a substantially larger effect than when modeled linearly.

A potential weakness of this study has to do with data collection. Because the study was voluntary, each cadet did not complete each of the six surveys. The loss of data is an inherent problem in longitudinal, multiple survey turnover studies. In order to overcome this restriction, the authors used survival analysis which allowed them to maximize the amount of analyzable data. In addition, it not only assesses if turnover occurred, but when it occurred.

A Master's thesis written by Ashcroft analyzed the factors affecting the career orientation of junior unrestricted line Naval officers. [Ref. 19] Ashcroft utilized data from the *1985 DoD Officer and Enlisted Personnel Survey*. Using multivariate regression analysis, he attempted to explain junior officer career orientation with biodemographic variables, tenure related variables, cognitive/affective orientation variables, perception of external job opportunity variables and family financial resource variables. Separate regression models were developed to determine the importance of these factors on short-term (beyond initial service obligation) and long-term (twenty or more years) career intentions.

Ashcroft concluded that the factors that most influence the career decisions of junior officers within their minimum service requirement to remain in the service beyond their initial obligation are the amount of time spent on sea duty, the perceived probability of finding a civilian job, satisfaction with pay and allowances, satisfaction with current military job, satisfaction with job training, and satisfaction with working conditions.

Factors that were significant in predicting long-term careers were the amount of sea duty, the perceived probability of finding a good civilian job, satisfaction with extrinsic job factors, warfare specialty area, and satisfaction with family-related factors. The

importance of family factors is an obvious difference between the long-term and short-term models.

A more recent issue possibly affecting the career decisions of military officers is the continuing down sizing effort within the Department of Defense. The end of the Cold War forced the military to reexamine its roles, missions and force structure. How have the recent down sizing efforts affected the career orientation of military personnel?

Wong and McNally [Ref. 20] examine issues and policy implications important to down sizing by addressing the concerns of Army officers. Utilizing focus groups, the authors explore the concerns of a sample of 52 middle-grade officers. Concerns revolved around three key issues:

1. The Army breaking faith and violating its informal contract
2. How would their future in the Army be determined?
3. How would the Army treat soldiers during the down sizing effort?

The authors developed a survey addressing these concerns and distributed it to officers attending the Army Command and General Staff College. These officers were thought to be true survivors of the down sizing effort. The survey was designed to measure organizational commitment, perceived effectiveness of the Army's communication, and the officer's perceptions of incentives to leave the Army.

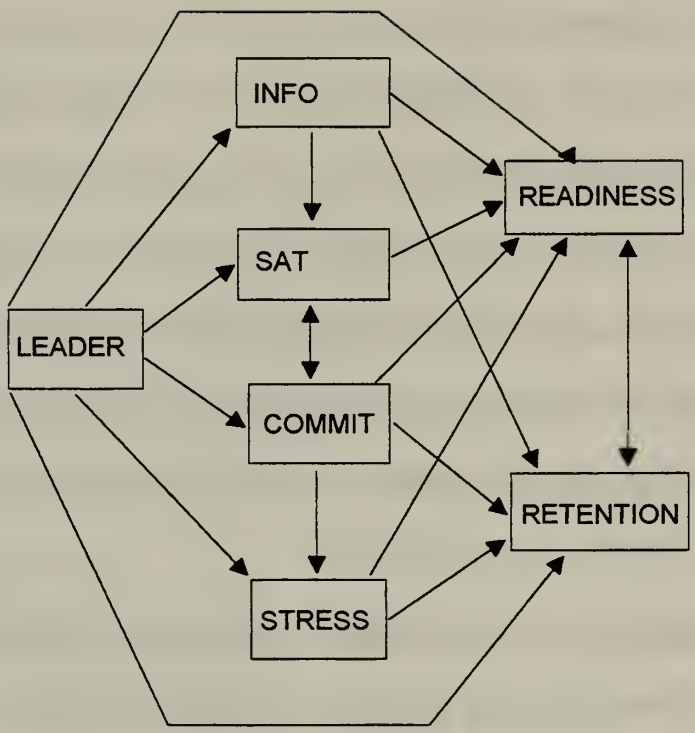
Results reflect a weakening of the psychological contract with the Army as a direct result of the down sizing. There was also a significant decrease in organizational commitment following the beginning of the down sizing effort, even among this sample of officers who had survived the personnel cuts. Most officers felt that the Army was

effectively communicating the down sizing plan and further, that the Army was taking care of its people.

Evans [Ref. 21] conducted semi-structured interviews of 179 active duty Army soldiers of all ranks during 1992. She identified a list of concerns among the soldiers that were common to the interviews regardless of age, rank, tenure, or occupation. Among the concerns identified were leader behavior characteristics, information flow, organizational commitment, satisfaction/motivation, performance/readiness, competition and cohesion, career intentions/retention, and stress related to the work environment.

From these concerns and prior research, the author developed a conceptual model of survivor reactions to down sizing (see Figure 2.2).

The author concludes that down sizing and the changing environment threaten commitment and satisfaction. The lack of information negatively influences commitment and satisfaction and contributes to work related stress. Leaders are a primary source of information and can moderate potential negative affects by providing information.



Environmental Variables:

Organizational Characteristics	Political Issues
Job Characteristics	Economic Issues
Individual Characteristics	Social Issues

Figure 2.2. Model of Common Down sizing Concerns (Source: Evans p 281)

D. SUMMARY

Table 2.3 summarizes the studies examined in this literature review.

Table 2.3. Summary of Literature Review

Author	Explanatory Variables	Significant Variables/Findings
Civilian Research		
March and Simon	desirability of movement(satisfaction), perceived alternatives	Conceptual model/Literature review
Mobley, Griffeth, Hand, and Meglino	Satisfaction, utility of current role, utility of alternate role	Intention to quit is best predictor of turnover
Arnold and Feldman	demographic, tenure, job satisfaction, organizational commitment, job security, intention to quit	age, tenure, overall job satisfaction, commitment, perceived job security, intention to search for alternate job
Dreher	employee performance, organizational reward systems, employee evaluation systems	No indication that high performers leave more often than low performers
Cotton and Tuttle	external, work related factors, personal characteristics	employment perceptions, accession rate, pay, performance, overall satisfaction, met expectations
Lee and Mitchell	"shocks" and related decision paths	"unfolding" model
Lee, Mitchell, Wise, and Fineman	Test of "unfolding" model	55% of cases followed traditional turnover theory 58% of cases reported shocks had affect on decision to quit
Bhagat, McQuaid, Lindholm, and Segovis	The effect of Stress on withdrawal behavior	Negative stress is associated with job dissatisfaction, lack of organizational commitment, and withdrawal

Table 2.3. Summary of Literature Review (cont.)

Author	Explanatory Variables	Significant Variables/Findings
Military Research		
Naval Personnel Research and Development Center	Sea tour experience, perception of working environment, professional development opportunities	Career intent 1-2 years prior to MSR is single best predictor of continuance beyond MSR
Derr	development of individual "fit" in organization	career anchor concept
Marsh	duty history, expectations, family status	months of active duty, highest expected pay grade, satisfaction with military life
Ashford, Lee, Walsh, and Mowday	commitment propensity, organizational commitment	organizational commitment predicted voluntary turnover
Ashcroft	biodemographic, tenure related, cognitive/affective orientation, external job opportunities, family financial resources	amount of sea duty, perceived probability of finding civilian job, overall satisfaction with military life
Wong and McNally	down sizing issues	significant decrease in organizational commitment following down sizing
Evans	down sizing issues	conceptual model

Source: Author

III. DATA DESCRIPTION

A. THE DATA

The data for this study come from the *1992 Department of Defense (DoD) Survey of Officers and Enlisted Personnel and Their Spouses.* The data were collected during the Spring and Summer of 1992 and contain information on the attitudes, experiences and demographic characteristics of military members and their spouses. [Ref. 22]

The 1992 survey was conducted by the Defense Manpower Data Center (DMDC) and sponsored by the Office of the Under Secretary of Defense for Personnel and Readiness. The survey contains almost 140 questions including items on demographics, military background and lifestyle, deployments, past and present locations, retention and career intentions, dependents, military compensation, benefits, and programs, civilian labor force experience, and family resources. [Ref. 22]

The 1992 survey responses were matched with DMDC's master files in 1996. By matching the social security numbers of survey respondents with a master loss file, actual retention data were captured as of June 1, 1996.

The 1992 survey sample population consisted of 96,830 active duty military members stratified by service, officer and enlisted status, and gender. Surveys were also sent to 64,643 spouses, of which 24,165 responded. Survey respondents totaled 59,930 of which 27,684 were officers and 32,264 were enlisted. Out of the officer respondents, 8,162 were Naval officers. [Ref. 22]

This thesis studies junior unrestricted line (URL) officers in pay grades O1 to O3, who are serving in their initial obligation. For the purpose of this study, URL officers are defined to be those officers in the surface (111X, 116X), subsurface (112X, 117X), and

aviation warfare (131X, 132X, 137X, 139X) communities. "Initial obligation" refers to a specific period of obligated service an individual "owes" the Navy following his or her commission. This period usually ranges from four to seven years. Survey question Q0004 asks respondents, "How many years of obligated service do you have remaining in your initial obligation?" [Ref. 23] If a respondent replied that he or she had completed his or her initial obligation or had more than four years remaining in his or her obligation, he or she was eliminated from this study. By eliminating these individuals, the data set is restricted to those who would have made a decision to stay in or leave the Navy prior to the inclusion of the matched loss data in June, 1996. These initial restrictions limited the original data set to 627 Naval officers.

B. DESCRIPTIVE STATISTICS

The survey was divided into ten topic areas. Variables created from survey questions in these ten areas can be used to describe the restricted data set.

One of the research questions of this thesis is to determine differences in career intentions or retention due to gender. The restricted data set is therefore separated into male and female categories with descriptive statistics for each. Table 3.1 contains the gender distribution for the restricted data set.

Table 3.1. Gender

Variable	Number	Percent
Gender (N=627)		
Male	518	82.6
Female	109	17.4

Source: Author

Descriptive statistics for the survey's ten topic areas are as follows:

1. Military Background

This section includes questions concerning branch of service, pay grade, years of service, commissioning source, and military deployments. Table 3.2 contains selected military background information.

Table 3.2. Military Background

Variable	Male		Female	
	Number	**Percent**	**Number**	**Percent**
Warfare Designator	**N=518**		**N=109**	
Surface Warfare Officer (SWO)	166	32.0	60	55.0
Submarine Warfare Officer (SUB)	82	15.8	0	0.0
Aviation Warfare Officer	270	52.1	49	45.0
Pay grade	**N=518**		**N=109**	
O1 - Ensign (ENS)	100	19.3	42	38.5
O2 - Lieutenant Junior Grade (LTJG)	201	38.8	33	30.3
O3 - Lieutenant (LT)	217	41.9	34	31.2
Commissioning Source	**N=502**		**N=109**	
ROTC	190	37.8	41	37.6
OCS	131	26.1	28	25.7
USNA	133	26.5	37	33.9
Other	48	9.6	3	2.8
Deployed for Desert Shield/Desert Storm	**N=518**		**N=109**	
Deployed	224	43.2	37	33.9
Not-Deployed	294	56.8	72	66.1
	Mean	**Std. dev.**	**Mean**	**Std. dev**
Years of Service **(N_m=437, N_f=86)**	5.58	2.33	5.18	2.59
Age when entered service **(N_m=437, N_f=86)**	22.56	1.28	22.68	1.27

Source: Author

A closer look at Tables 3.1 and 3.2 reveals interesting facts about the restricted data set. During fiscal year 1992, females represented roughly 7.7 percent of the Navy

URL officers in grades O1 to O3. [Ref. 24] Clearly, the stratified sample for this study is over representative of the female officer population.

The majority of the male officers in the data set are Aviation Warfare Officers in pay grade O3. Almost 38 percent of them received their commission the ROTC program. The majority of them were not deployed for Desert Shield/Desert Storm. Their average age when they entered the service is 22.5 years. They have, on average, completed 5.6 years of service.

The majority of the female officers in the data set are SWOs. Thirty eight percent of them are in pay grade O1. The most common commissioning source among them was the ROTC program. The majority of female officers were not deployed for Desert Shield/Desert Storm. Their average age when they entered the service is 22.6 years. They have, on average, completed 5.2 years of service.

2. Present and Past Locations

This section includes questions concerning a service member's present location and Permanent Change of Station (PCS) moves, and sea duty history. Table 3.3 contains selected past and present location information.

Table 3.3. Past and present location

Variable	Male		Female	
	Mean	Std. dev	Mean	Std. dev
Months at present location **(N_m=517, N_f=109)**	17.99	11.75	17.96	10.81
Number of times service member moved (PCS) while on active duty **(N_m=516, N_f=109)**	4.35	1.79	3.83	1.71
Number of times service member's spouse moved (PCS) while on active duty **(N_m=264, N_f=39)**	3.10	1.57	2.09	0.94

Table 3.3. Past and present location (cont.)

Variable	Male		Female	
	Mean	**Std. dev**	**Mean**	**Std. dev**
Number of months service member has spent overseas while on active duty **(N_m=511, N_f=108)**	6.38	10.52	7.11	10.65
Number of months service member has spent on sea duty while on active duty **(N_m=509, N_f=107)**	20.33	15.99	17.86	13.46
	Male		**Female**	
	Number	**Percent**	**Number**	**Percent**
Type of housing member currently resides in	**N=516**		**N=107**	
Base/Govt.	78.00	15.1	8	7.5
Leased by military	1.00	0.2	0	0
Owned by service member	119.00	23.1	23	21.5
Rented by service member	307.00	59.5	75	70.1
Owned by someone else/let without payment	7.00	1.4	0	0
Live onboard Navy ship	4.00	0.8	1	0.9

Source: Author

Both male and female officers spent an average of nearly 18 months at their present location. Female officers spent more time, on average, overseas than male officers. However, male officers spent more time, on average, on sea duty. The majority of junior URL officers rent the house they currently live in.

3. Reenlistment/Career Intent

This section includes questions concerning reenlistment intentions, likelihood of promotion, and career orientation. Table 3.4 contains selected information on reenlistment/career intent.

Male officers, on average, expect to have completed more years of service when they retire than female officers. Both male and female officers feel that their chance of

Table 3.4. Reenlistment/career intent information

Variable	Male		Female	
	Mean	**Std. dev**	**Mean**	**Std. dev**
Number of years of service service member expects to have completed when retired **(N_m=518, N_f=109)**	12.95	8.03	11.40	7.74
Service member's thoughts on their likelihood of promotion [1] **(N_m=432, N_f=95)**	0.85	0.19	0.86	0.18
	Number	**Percent**	**Number**	**Percent**
Service member's status as of 1 June 1996 [2]	**N=518**		**N=109**	
Stayer - remains on active duty	289	55.90	50	45.90
Left active duty - joined Selected Reserve	149	28.80	35	32.10
Left active duty - did not join Selected Reserve	79	15.30	23	21.10
Retired	1	0.20	1	0.90

[1] Scale of 0-10 as follows: 0=no chance, 0.1=very slight possibility, 0.2=slight possibility, 0.3=some possibility, 0.4=fair possibility, 0.5=fairly good possibility, 0.6=good possibility, 0.7=probable, 0.8=very probable, 0.9=almost sure, 0.10=certain.

[2] Based on matched data from DMDC Master Loss file

Source: Author

being promoted to the next grade are, on average, very probable. This is not uncommon at the junior officer level.

Actual retention data show that the majority of male officers remained on active duty four years after the survey was completed. The majority of female officers, however, left active duty within the four year period between the survey and when the loss data were matched to survey responses. Of the officers who left active duty, a higher percentage of both male and female officers joined the Selective Reserve as opposed to leaving military service altogether.

4. Individual and Family Characteristics

This section includes questions concerning level of education, eligibility for educational benefits, and spouse. Table 3.5 contains selected information on individual and family characteristics.

Table 3.5. Individual and family characteristics

Variable	Male		Female	
	Number	Percent	Number	Percent
Race	**N=518**		**N=109**	
White + other	497	95.90	101	92.70
Hispanic	11	2.10	4	3.70
Black	9	1.70	4	3.70
Highest level of education obtained	**N=517**		**N=109**	
2 year college degree	6	1.20	1	0.90
4 year college degree	460	89.00	96	88.10
Some graduate school	41	7.90	8	7.30
Master's degree (MA/MS)	9	1.70	4	3.70
Family Status	**N=502**		**N=107**	
Single, no children	237	47.20	72	67.30
Single, with children	1	0.20	3	2.80
Married, no children	164	32.70	27	25.20
Married, with children	100	19.90	5	4.70
	Mean	**Std. dev.**	**Mean**	**Std. dev**
Current Age **(N_m=518, N_f=109)**	28.04	2.72	27.31	2.95

Source: Author

Of note in Table 3.5 is the under representation of Black and Hispanic officers in the restricted sample. Black and Hispanic officers are roughly 5.3 percent and 3.1 percent, respectively, of the Navy's total officer population. [Ref. 25]

As expected, the majority of the officers in this study have a four year college degree. The officers in this restricted data set are all in their initial period of obligated service. Most graduated from college and immediately entered the service, with no time to pursue graduate education.

The majority of the male officers are married as opposed to the majority of female officers being single. Additionally, the relatively large sample size and distribution of married versus non-married male officers presents an opportunity for studying the differences in career intentions and retention due to marital status. It is hypothesized that different variables affect the career/retention intentions of married versus non-married personnel. Prior military research on the relationship between marital status and career continuance is limited and inconclusive. [Ref. 7, p. A-2] This relationship will be explored further in Chapter Four.

5. Dependents

This section includes information on the number and ages of dependents, child care, school, and concerns about family separation. Table 3.6 contains selected information on dependents.

Table 3.6. Dependent information

Variable	Male		Female	
	Mean	**Std. dev**	**Mean**	**Std. dev**
Number of dependents [1] **(N_m=507, N_f=109)**	0.33	0.75	0.07	0.26
	Number	**Percent**	**Number**	**Percent**
Number of months service member separated from spouse/dependents while on active duty	**N=286**		**N=39**	
6 months or less	67	23.40	14	35.90
More than 6 months but less than 1 year	65	22.70	7	17.90
1 - 2 years	132	46.20	14	35.90
3 - 4 years	19	6.60	3	7.70
More than 4 years	3	1.00	1	2.60

[1] Taken from member's service record

Source: Author

The average number of dependents for both male and female officers is rather low. The restricted data set contains only junior officers in their initial obligation. The majority of these young officers do not have dependents, bringing the average number of dependents for the data set down.

The question concerning time away from spouse and dependents was applicable to married personnel only. The most common length of separation for male officers was 1-2 years. The most common lengths of separation for female officers were 6 months or less away or 1-2 years away from spouse and dependents. This period of time away is cumulative, not continuous, and includes operational exercises, routine deployments, and other operations.

6. Military Compensation, Benefits, Programs

This section includes questions concerning pay and allowances, health care, and DoD services. Table 3.7 contains selected information on military compensation, benefits and programs.

Table 3.7. Military compensation, benefits, and programs

Variable	Male		Female	
	Number	Percent	Number	Percent
Pay and Allowances member currently receives	**N=518**		**N=109**	
BAQ	445	85.90	103	94.50
BAS	502	97.10	99	90.80
Sea pay	21	4.10	2	1.80
Submarine pay	82	15.80	0	0.00
Flight pay	266	51.40	45	41.30
Health Coverage	**N=518**		**N=109**	
Civilian health coverage or HMO	44	8.40	2	1.80
Delta Dental plan coverage	337	65.00	103	94.50

Table 3.7. Military compensation, benefits, and programs (cont.)

Variable	Male		Female	
	Number	Percent	Number	Percent
Member's feelings about military health benefits compared to comparable civilian position	**N=489**		**N=102**	
Better than most	221	45.20	65	63.70
About the same	163	33.30	29	28.40
Worse than most	105	21.50	8	7.80

Source: Author

The majority of the junior officers in the restricted data set receive Basic Allowance for Quarters (BAQ) and Basic Allowance for Subsistence (BAS). BAQ is paid to those officers who are not residing in government quarters or aboard ship as a supplement to their regular pay to cover at least eighty-five percent of their rental expenses.

The majority of both male and female officers are enrolled in the Navy's Dental Plan, but very few have any civilian health coverage or HMO plan. Active duty service members have little need of any civilian health plan because health care is provided for them by the Navy, at military facilities.

The most common feeling amongst the officers in the data set is that military health benefits are better than the benefits that would be provided in a comparable civilian position. This implies that these officers are satisfied with the benefits provided for them by the military.

7. Member Civilian Labor Force/Volunteer Experience

This section includes questions concerning a service member's civilian employment experience, civilian employment intentions, and force reduction concerns. Table 3.8 contains selected information on member civilian labor force and volunteer experience.

Table 3.8. Member civilian labor force/volunteer experience

Variable	Male		Female	
	Number	Percent	Number	Percent
Member has actively looked for civilian job in the last 12 months **(N_m=516, N_f=109)**	38	7.40	2	1.80
Member expects to be involuntarily separated due to force reductions	**N=513**		**N=109**	
Yes	16	3.10	2	1.80
No	445	86.70	98	89.90
Don't know	52	10.10	9	8.30
	Mean	**Std. dev**	**Mean**	**Std. dev**
Member's feeling on probability of obtaining civilian employment [1] **(N_m=516, N_f=109)**	0.72	0.23	0.72	0.19
Force reduction concerns [2] **(N_m=513, N_f=109)**				
Long term opportunities in the military	3.28	1.41	3.25	1.31
Kind of work member will go into if forced to leave military	3.18	1.34	2.98	1.31
Ability to get civilian work quickly	3.15	1.36	3.09	1.23
Financial burden on member and family if forced to leave military	3.33	1.43	3.03	1.29
Ability to adjust to civilian life	1.72	1.08	1.79	1.06

[1] Scale of 0-10 as follows: 0=no chance, 0.1=very slight possibility, 0.2=slight possibility, 0.3=some possibility, 0.4=fair possibility, 0.5=fairly good possibility, 0.6=good possibility, 0.7=probable, 0.8=very probable, 0.9=almost sure, 1.0=certain.

[2] Scale of 1-5 as follows: 1=not at all concerned, 2=somewhat concerned, 3=moderately concerned, 4=greatly concerned, 5=very greatly concerned

Source: Author

It is evident from Table 3.8 that the majority of the officers in the data set are at least moderately concerned about how force reduction will affect their families and future careers. The effect of this concern on career intentions and retention is one of the primary research questions of this thesis. This will be explored further in Chapter Four.

The majority of officers in the restricted data set do not expect to be involuntarily separated due to force reductions. The officers also felt, on average, that they could obtain civilian employment if they were forced to.

8. Spouse Labor Force Experience

This section includes questions concerning spouse employment and is applicable to married personnel only. Table 3.9 contains selected information on spouse employment.

Table 3.9. Spouse employment (Married Officers only)

Variable	Male		Female	
	Number	Percent	Number	Percent
Spouse currently employed:	**N=264**		**N=34**	
Full-time in armed forces	12	4.50	22	64.70
Full-time other civilian job	90	34.10	4	11.80
Part-time other civilian job	36	13.60	0	0.00
Self-employed	10	3.80	1	2.90
In school	39	14.70	4	11.80
Unemployed	21	7.90	1	2.90
Other	56	21.21	2	5.88

Source: Author

A higher percentage of male officers' spouses in the data set are employed in a full or part time civilian job compared to not being employed. It is interesting to note that the majority of female officer's spouses are employed full time in the military.

9. Family Resources

This section includes questions concerning income sources and financial status. Table 3.10 contains selected information on family resources.

Table 3.10. Family Resources

Variable	Male		Female	
	Mean	Std. dev	Mean	Std. dev
Member's overall feelings about their income[1] **(N_m=477, N_f=104)**	3.51	0.89	3.80	0.82

[1] Scale of 1-5 as follows: 1=very dissatisfied, 2=dissatisfied, 3=neither satisfied nor dissatisfied, 4=satisfied, 5=very satisfied

Source: Author

It appears, on average, that both male and female officers are nearly "satisfied" with their income. Income for this question included all sources of family income, not just the member's military income.

10. Military Life

This section includes questions concerning morale, sources of stress, and satisfaction with military lifestyle. Table 3.11 contains selected information on military life variables.

Table 3.11. Military Life

Variable	Male		Female	
	Mean	Std. dev	Mean	Std.dev
Member's feelings about Military life [1]	N=515		N=108	
Military life is as expected	3.76	1.09	3.69	1.13
Family would be better off if member had civilian job	2.98	0.9	3.14	1.08
Family was prepared for demands of job	3.02	0.74	3.41	1.09
Future military personnel will not have as good retirement benefits as member has now	3.5	0.9	3.64	0.98
Military pay/benefits will not keep up with inflation	3.56	0.92	3.2	0.77

[1] Based on 1-5 scale as follows: 1=strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree

Table 3.11. Military Life (cont.)

Variable	Male		Female	
	Mean	**Std. dev**	**Mean**	**Std.dev**
Military skills will be helpful in securing civilian job	3.85	0.93	3.69	0.73
Current job assignment is important work	3.94	0.86	3.72	0.77
Current job assignment is challenging work	3.79	0.86	3.67	0.61
Promotion opportunity is better than it would have been without this assignment	2.73	0.69	2.81	0.67
Receive good support from chain-of-command	3.55	1.13	3.78	1.19
Receive good support from supervisor	3.49	0.87	3.55	0.95
Sources of stress [1]	**N=515**		**N=109**	
Separation from family	3.05	1.42	2.93	1.47
PCS move	2.23	1.32	2.28	1.35
Job situation	3.55	1.16	3.75	1.3
Family situation	2.26	1.18	2.24	1.31
Personal safety	2.03	1.06	1.88	1.07
Health	1.92	1.02	1.98	1.17

[1] Based on 1-5 scale as follows: 1=none, 2=little stress, 3=some stress, 4-fair amount of stress, 5=a great deal of stress

Male and female officers in the data set, on average, disagree that family would be better off if member had civilian job. They also disagree that their families were prepared for the demands of their job.

Male and female officers disagree that their promotion opportunities are any better because of their current job. I would expect this at the junior officer level because most of the officers in this study are filling division officer billets which have similar demands and responsibilities. No one division officer job is more promotion enhancing than any other.

Separation from family seems to cause male officers more stress than female officers. The officer's job situation causes both male and female officers some stress, slightly higher for females.

Table 3.11. Military Life (cont.)

Variable	Male		Female	
	Mean	Std. dev	Mean	Std.dev
Satisfaction with military way of life [1]	**N=515**		**N=108**	
Personal freedom	3.24	1.09	3.31	1.13
Acquaintances/friendships	4.02	0.90	3.86	1.08
Work group/co-workers	3.98	0.74	3.59	1.09
Assignment stability	3.50	0.90	3.36	0.98
Pay and allowances	3.44	0.92	3.79	0.77
Environment for families	3.15	0.93	3.31	0.73
Frequency of moves	3.06	0.86	3.28	0.77
Retirement benefits	3.21	0.86	3.33	0.61
Opportunity to serve one's country	4.27	0.70	4.19	0.67
Satisfaction with current job	3.45	1.13	3.22	1.19
Promotion opportunities	3.51	0.88	3.45	0.95
Job training/in-service education	3.52	0.90	3.35	1.00
Job security	3.44	0.96	3.52	0.91
Working/environmental conditions	3.17	1.01	3.12	1.17
Overall satisfaction with military way of life [2]	3.34	1.68	3.20	1.65

[1] Based on 1-5 scale as follows: 1=very dissatisfied, 2= dissatisfied, 3=neither satisfied or dissatisfied, 4=satisfied, 5=very satisfied

[2] Based on 1-7 scale as follows: 1=very dissatisfied, 2=dissatisfied, 3=somewhat dissatisfied, 4=neither satisfied nor dissatisfied, 5=somewhat satisfied, 6=satisfied, 7=very satisfied

Source: Author

The only variable that seems to stand out in the satisfaction with military way of life variables is the opportunity to serve ones country. The average for both male and female officers is slightly above satisfied.

The service members' overall satisfaction with the military way of life is, on average, closest to somewhat dissatisfied for both males and females. The average for female officers is higher than male officers, implying that female officers are less satisfied with the military lifestyle than male officers.

IV. MODEL DEVELOPMENT AND VARIABLE SELECTION

A. MODEL DEVELOPMENT

Most of the conceptual models of turnover discussed in the literature review included essentially the same explanatory variables, separated into different categories. Based on the literature review, this thesis modeled an officer's career intent as a function of three broad categories of explanatory variables. By determining the relative importance of the factors which affect an officer's intention to remain on active duty, manpower planners can better manage the retention of junior URL officers. Additionally, the actual retention data matched to the survey data provided an excellent comparative tool to determine the explanatory power of the conceptual model of this study.

The dependent variable was based on an officer's response to survey question M023023 which asked, "When you finally leave the military, how many total years of service do you expect to have?" [Ref. 23]. From this question a categorical variable, CAREER, was developed. It equals one if an officer answered twenty or greater and zero if the officer answered less than twenty years. The twenty year point was used because this is the minimum length of service required for service members to retire and receive compensatory benefits.

The variables in my conceptual model shown in Figure 4.1 were grouped into the broad categories *personal, internal work related, and external work related.*

1. ***Personal***

a. *Bio-demographic* -- Individual information including family status and race.

b. *Duty History* -- An officer's warfare designator, commissioning source, total number of months on sea duty, and whether or not he or she was deployed to Desert Shield/Desert Storm.

2. ***Internal Work Related***

a. *Satisfaction* -- An officer's satisfaction with military lifestyle, pay and allowances, and coworkers.

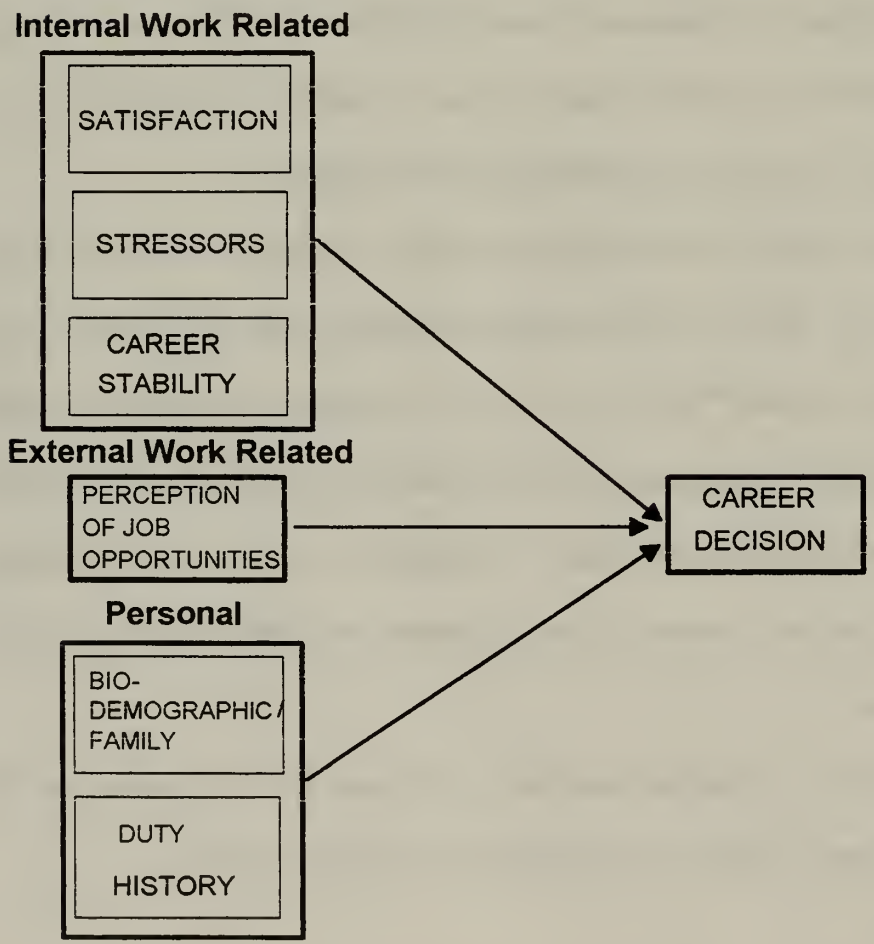


Figure 4.1 The Conceptual Model (Source: Author)

b. *Career Stability* -- An officer's feelings concerning his or her military career opportunities and concerns about down sizing.

c. *Sources of Stress* -- An officer's sources of personal and work related stress.

3. ***External Work Related***

a. *Perception of External Job Opportunities* -- An officer's feelings about the transferability of their military skills to the civilian job market.

B. METHODOLOGY

This study utilized logistic regression analysis to analyze career intentions of junior URL officers. The binary logistic model, based on the cumulative logistic probability function, gives the probability that a given officer intends to remain in the Navy, given the values of the explanatory variables. Once the logistic model has been estimated, the coefficients can be interpreted as the impact of a one unit change in a specific variable, holding the values of the other explanatory variables constant. [Ref. 26]

The predicted value of career intention from the logistic model was then compared to actual retention data. This comparison was done in an attempt to determine the explanatory power of the variables in the model, that is, of those officers that the model predicted would stay, how many actually stayed? This enables us to determine if the questions being asked in the survey were in fact a useful tool for manpower planners.

C. DATA SETS

The data discussed in Chapter Three were divided into three separate data sets for analysis. Table 4.1 provides of the number of sample observations in each of the data sets.

Table 4.1. Data Set Observations

Data Set	Male (single)	Male (married)	Female
Number of observations	238	264	109

Source: Author

One of the primary research questions of this thesis was to determine differences in career intentions due to gender. During exploratory analysis of the data in Chapter Three, it was determined that there were also differences in survey responses due to marital status. Additionally, it was felt that there were sufficient data to develop separate models for male married and single officers. Unfortunately, there were too few female officers to model married and single officers separately. The female model used a marital status variable to capture differences in intention due to marital status.

D. VARIABLE SELECTION AND DEFINITION

This section discusses the selection of explanatory variables for each of the broad categories described in the conceptual model. One model of career intentions was developed for each of the three data sets described above. The explanatory variables for each model are introduced here followed by a summary table for each logistic regression model.

1. Single Male Model Explanatory Variables

a. Internal Work Related

The fourteen satisfaction with military way of life variables (Table 3.1), the five sources of stress variables (Table 3.11), and the force reduction concerns variables (Table 3.8) were initial candidates for inclusion in this category. Some variables were eliminated because responses showed very limited variation or the questionnaire item was difficult to interpret. Variable reduction techniques were employed to identify dimensions among related variables and maintain the statistical integrity of the model.

The variable concerning satisfaction with frequency of moves was eliminated because officers in the restricted data set were in their initial tour of duty and

therefore had not experienced many moves at the time of the survey. The variable concerning satisfaction with the opportunity to serve ones country was also eliminated. It is unclear what this question was attempting to measure and the variance of the responses to this question were small (not unexpected for military officers). The variable concerning satisfaction with environment for families was eliminated for single male officers due to non-applicability. Among the force reduction concerns variables, the variable measuring an individual's concerns with his ability to adjust to civilian life was eliminated. It was unclear what this question was attempting to measure. Additionally, the variance in the responses to this question was small. (Seventy percent were not at all concerned.)

Principal components and factor analysis were utilized to reduce the remaining eleven satisfaction variables and four force reduction concern variables to common factors. Principal components analysis is a multivariate technique used to simplify a set of interrelated variables. The SAS procedure "PROC PRINCOMP" transforms the original variables into new, uncorrelated variables. The principal components are arranged in order of decreasing variance, i.e., the most informative principal component is first and the least is last. Instead of analyzing a large number of original variables with complex interrelationships, a small number of independent principal components can be used. [Ref. 27]

Factor analysis was used to extract common factors from the principal components that explain the interrelationships among the original variables. The factors were then rotated and selected so that some of the variable loadings were large and others small. This allows for ease of interpretation. [Ref. 27] The SAS procedure "PROC

FACTOR" performs factor analysis. Table 4.2 and 4.3 provide a summary of the results of the variable reduction techniques.

Table 4.2. Factor Analysis of Satisfaction Variables (Single males)

Composite Dimension	Factor Name	Variable	Factor Loading
Intrinsic Job Satisfiers	**INTRINSIC**	*Current Job*	0.787
		Personal Freedom	0.734
		Work Conditions	0.725
		Coworkers	0.707
		Acquaintances	0.706
		Job Assignment	0.557
Extrinsic Job Satisfiers	**EXTRINSIC**	*Job Security*	0.779
		Promotion Opportunity	0.748
		Job Training	0.557
		Retirement benefits	0.529
		Pay	0.448

Source: Author

Table 4.3. Factor Analysis of Draw down Concerns (Single males)

Composite Dimension	Factor Name	Variable	Factor Loading
Job Loss Concerns	**JOBLOSS**	*Finding civilian job*	0.923
		Financial burden	0.825
		Kind of work	0.329
Job Stability Concerns	**STABILITY**	*Long-term opportunity in military*	0.951

Source: Author

The literature review suggested that. individuals who were satisfied with their jobs and job attributes were more likely to remain in the military. Therefore, it was expected that INTRINSIC and EXTRINSIC would have positive impacts on the dependent variable, CAREER.

It was expected that JOBLOSS AND STABILITY, the drawdown concerns variables, would also have positive effects on the dependent variable. The basis for this hypothesis was that the drawdown concerns variables measure an individual's perception of his ability to obtain civilian employment if he is forced to leave the military. If he is concerned about obtaining a civilian job he is more likely to remain in the military.

Among the variables measuring an individual officer's sources of stress, the variables concerning stress related to family situation were eliminated for single males. Additionally, the variable measuring stress due to PCS moves was eliminated for the same reasons as the variable measuring satisfaction with PCS moves.

The variables measuring stress due to health and personal safety were eliminated due to small variances in the responses to these questions. More than seventy percent of the single male officers reported that health and personal safety gave them little or no stress at all which does not provide adequate dispersion for inclusion in the logit regression model.

The variable JOBSIT was created from a survey question that asked individuals to what degree their job situation caused them stress. The literature review suggested that stress was associated with work dissatisfaction and turnover. The expected sign of this variable was therefore negative.

b. External Work Related

Most of the variables considered for inclusion in this category were captured by Factor 1, INTRINSIC. INTRINSIC includes variables measuring satisfaction with pay, retirement benefits, training, job security, and promotion benefits.

Much of the turnover literature reviewed in Chapter Two found substantial evidence that an individual's perception of external job opportunities was significantly related to voluntary turnover. One of the survey questions asks members to what degree they agree with the statement that their military skills will be helpful in securing a civilian job (Table 3.11). The variable CIVSKILL was created from responses to this question. It was expected that, as an individual's perception of the transferability of his military skills to a civilian job increases, the less likely he would be to remain on active duty. The expected sign of this variable was negative.

c. Personal

As a result of restrictions placed on the data, many of the variables considered for inclusion in this category were already accounted for or were eliminated due to small variances in the responses. One of the research questions of this thesis was to determine differences in career intentions due to race. The restricted data set contains only 3.8 percent minorities, too few observations to provide adequate dispersion for the logit regression model. The time/tenure variables, years of service, pay grade, and entry age, were eliminated due to small variation in the restricted data set.

An officer's warfare designator was created from matched data from DMDC. It is a dichotomous variable equaling one if the officer holds that designator. If the officer was an aviation warfare officer (131X, 132X, 137X, 139X) then AVIATOR equals one. If the officer was a submarine warfare officer (112X,117X) then SUB equals one. If the officer was a surface warfare officer (111X,116X) then SWO equals one. The base case for the single male officer model was AVIATOR because this was the most common warfare designator for the single officers in the restricted data set. It was

expected that aviation warfare officers and submarine warfare officers were more likely to leave the military than surface warfare officers due to transferability of their skills to civilian jobs.

The commissioning source variables ROTC, USNA, and OCS were created from the survey question on commissioning source. They were dichotomous variables equaling one if an officer was commissioned from that source. ROTC represents officers commissioned through the Reserve Officer Training Corps, both scholarship and non-scholarship. USNA represents graduates of the Naval Academy. OCS represents officers who received their commission through Officer Candidate School or other commissioning sources. The base case for the single male officer model was ROTC. It was expected that officers who were commissioned through the Naval Academy and ROTC programs were more likely to remain in the military than officers who were commissioned through the OCS program because these individuals have had specific education aimed at military careers. OCS graduates may have better transferability of skills to the civilian sector and would therefore be more likely to leave.

A dichotomous variable DEPWAR was constructed from a survey question asking the individual if he was deployed for Desert Shield/Desert Storm. If the individual was deployed for either or both of these military operations, DEPWAR equals one. The expected effect of this variable on the dependent variable is unclear. Some individuals may feel that deploying for war allowed them to use the skills they had been trained for. The effect on these individuals would be positive. However, it is hypothesized that many individuals join the military for the education, job security, and other benefits, never giving any thought to having to deploy for war. It was expected that deploying for war may be

considered what Lee and Mitchell termed as a "shock" to their system, causing them to consider leaving the military. [Ref. 8] It was hypothesized that the negative aspects of deploying for war outweigh the positive aspects of being able to use the skills an individual was trained for. It was therefore expected that the sign of this variable was negative.

A continuous variable, SEADUTY, was constructed by dividing an individual's total amount of time on sea duty by his years of commissioned service. This yields a variable that represents sea time as a percentage of total time on active service. Sea duty is arduous by nature. It encompasses time away from home and long, sometimes thankless, working hours and conditions. It was expected that this variable would negatively affect an individual's intention to make the military a career.

Table 4.4 summarizes the variables selected for inclusion in the logit regression model for single male officers.

Table 4.4. Explanatory Variables in the Single Male logistic model

Category	Variable	Variable definition	Expected Sign
Internal Work Related	INTRINSIC	Intrinsic job satisfiers	+
	EXTRINSIC	Extrinsic job satisfiers	+
	JOBLOSS	Job loss concerns	+
	STABILITY	Job stability concerns	+
	JOBSIT	Stress due to job situation	-
External Work Related	CIVSKILL	Military skills helpful in obtaining civilian job	-
Personal	OCS	Officer Candidate School - commissioning source	-
	ROTC	Reserve Officer Training Corps - commissioning source	Base Case
	USNA	U.S. Naval Academy - commissioning source	+
	AVIATOR	Aviation warfare designator	Base Case
	SWO	Surface warfare designator	+
	SUB	Submarine warfare designator	-
	DEPWAR	deployed for Desert Shield/Desert Storm	-
	SEADUTY	sea time as a percentage of total time on active duty	-

Source: Author

2. Married Male Model Explanatory Variables

a. Internal Work Related

The logit regression model for married males was essentially the same as that for the single males with several additions. The following section describes only differences and additions to the single male model.

The fourteen satisfaction with military way of life variables (Table 3.1), the five sources of stress variables (Table 3.11), and the force reduction concerns variables (Table 3.8) were initial candidates for inclusion in this category. The variables concerning

satisfaction with frequency of moves, opportunity to serve ones country, concerns about his ability to adjust to civilian life, and stress due to PCS moves were eliminated for the same reasons explained for the single male logistic model.

The variable reduction techniques, principal components and factor analysis, were utilized to reduce the remaining eleven satisfaction variables, four force reduction concern variables, and five sources of stress variables to common factors. The variables measuring stress related to family situation were included in the factor analysis of the stress variables. Table 4.5 through 4.7 provide a summary of the results of the variable reduction techniques.

Table 4.5. Factor Analysis of Satisfaction Variables (Married males)

Composite Dimension	Factor Name	Variable	Factor Loading
Intrinsic Job Satisfiers	**INTRINSIC**	*Coworkers*	0.748
		Acquaintances	0.722
		Current Job	0.710
		Work conditions	0.687
		Personal Freedom	0.678
		Job Assignment	0.532
Extrinsic Job Satisfiers	**EXTRINSIC**	*Job Security*	0.797
		Promotion Opportunity	0.723
		Retirement benefits	0.631
		Pay	0.516
		Job training	0.466

Source: Author

Table 4.6. Factor Analysis of Draw down Concerns (Married males)

Composite Dimension	Factor Name	Variable	Factor Loading
Job Loss Concerns	**JOBLOSS**	*Finding civilian job*	0.919
		Kind of work	0.856
		Financial burden	0.667
Job Stability Concerns	**STABILITY**	*Long-term opportunity in military*	0.951

Source: Author

Table 4.7. Factor Analysis of Sources of Stress (Married males)

Composite Dimension	Factor Name	Variable	Factor Loading
Personal stress	**PERSTRESS**	*Health*	0.837
		Personal safety	0.777
Job stress	**JOBSTRESS**	*Separation from family*	0.876
		Family situation	0.629
		Job situation	0.549

Source: Author

b. External Work Related

The variable CIVSKILL was included in the married male model. The expected sign of this variable was negative.

c. Personal

The base case for the married male model was an officer whose commissioning source was ROTC and warfare designator AVIATOR. The variable SEADUTY was eliminated from the married male logistic model due to high correlation with the warfare designator variables (r = 0.39.) The following variables in the single male model were also included in the married male model: SWO, SUB, USNA, OCS, and

DEPWAR. Their expected effects on the dependent variable were the same as for the single model.

The dichotomous variable, CHILDREN, was constructed from data from an individual officer's service record. The variable equals one if the service member had children. It was hypothesized that male officers with children were more likely to remain in the military. The opportunity costs associated with leaving the service are greater for individuals who are married, and even greater for those with children. The expected sign of this variable was positive.

Table 4.8 summarizes the variables selected for inclusion in the logistic regression model for married male officers.

Table 4.8. Explanatory Variables in the Male (married) logit regression model

Category	Variable	Variable definition	Expected Sign
Internal Work Related	INTRINSIC	Intrinsic job satisfiers	+
	EXTRINSIC	Extrinsic job satisfiers	+
	JOBLOSS	Job loss concerns	+
	STABILITY	Job stability concerns	+
	PERSTRESS	Personal stress	-
	JOBSTRESS	Job stress	-
External Work Related	CIVSKILL	Military skills helpful in obtaining civilian job	-
Personal	CHILDREN	Service member has children or not	+
	OCS	Officer Candidate School - commissioning source	-
	ROTC	Reserve Officer Training Corps - commissioning source	Base Case
	USNA	U.S. Naval Academy - commissioning source	+
	AVIATOR	Aviation warfare designator	Base Case
	SWO	Surface warfare designator	+
	SUB	Submarine warfare designator	-
	DEPWAR	deployed for Desert Shield/Desert Storm	-

Source: Author

3. Female Model Explanatory Variables

a. Internal Work Related

The logit regression model for female officers was essentially the same as that for the single males with several additions. The following section describes only differences and additions to the single male model.

The fourteen satisfaction with military way of life variables (Table 3.1), the five sources of stress variables (Table 3.11), and the force reduction concerns variables

(Table 3.8) were initial candidates for inclusion in this category. The variable concerning satisfaction with frequency of moves, satisfaction with the opportunity to serve ones country, and concerns with her ability to adjust to civilian life were eliminated for the reasons discussed in the previous models. The variable reduction techniques, principal components and factor analysis, were utilized to reduce the remaining eleven satisfaction variables and four force reduction concern variables to common factors. Table 4.9 and 4.10 provide a summary of the results of the variable reduction techniques.

Table 4.9. Factor Analysis of Satisfaction Variables (Females)

Composite Dimension	Factor Name	Variable	Factor Loading
Intrinsic Job Satisfiers	**INTRINSIC**	*Coworkers*	0.772
		Acquaintances	0.752
		Personal freedom	0.705
		Work conditions	0.593
		Current Job	0.549
Extrinsic Job Satisfiers	**EXTRINSIC**	*Promotion Opportunity*	0.781
		Job security	0.697
		Job training	0.608
		Current assignment	0.425
		Retirement benefits	0.373
		Pay	0.360

Source: Author

Table 4.10. Factor Analysis of Draw down Concerns (Females)

Composite Dimension	Factor Name	Variable	Factor Loading
Job Loss Concerns	**JOBLOSS**	*Kind of work*	0.894
		Finding civilian job	0.897
		Financial burden	0.659
Job Stability Concerns	**STABILITY**	*Long-term opportunity in military*	0.957

Source: Author

Among the variables measuring an individual officer's sources of stress, the variables concerning stress related to family situation were eliminated for females due to the limited number of females with children in the restricted data set (7.3 percent). Additionally, the variable measuring stress due to PCS moves was eliminated for the same reasons as the variable measuring satisfaction with PCS moves. The variables measuring stress due to health and personal safety were eliminated due to small variances in the responses to these questions.

The variable JOBSIT was included in the female logit regression model. This variable measures stress due to an individual's job situation. The expected sign of this variable was negative.

b. External Work Related

The variable CIVSKILL was included in the female model. The expected sign of this variable was negative.

c. Personal

The warfare designator variables were eliminated from the female logit model due to high correlation with the variable SEADUTY ($r = 0.52$.) The base case for the female officer model was an officer whose commissioning source was ROTC because this was the most common commissioning source in the female restricted data set. The variables USNA, OCS, DEPWAR, and SEADUTY are included in the female model. The expected signs of these variables were the same as those discussed in the previous models.

The dichotomous variable MARRIED was constructed from data from an individual officer's service record. The variable equals one if the service member was married. It was hypothesized that the opportunity costs associated with leaving the

service were greater for individuals who were married. The expected sign of this variable was positive.

Table 4.11 summarizes the variables selected for inclusion in the logit regression model for female officers.

Table 4.11. Variables in the Female logistic model

Category	Variable	Variable definition	Expected Sign
Internal Work Related	INTRINSIC	Intrinsic job satisfiers	+
	EXTRINSIC	Extrinsic job satisfiers	+
	JOBLOSS	Job loss concerns	+
	STABILITY	Job stability concerns	+
	JOBSIT	Stress due to job situation	-
External Work Related	CIVSKILL	Military skills helpful in obtaining civilian job	-
Personal	MARRIED	Service member is married or not	+
	OCS	Officer Candidate School - commissioning source	-
	ROTC	Reserve Officer Training Corps - commissioning source	Base Case
	USNA	U.S. Naval Academy - commissioning source	+
	DEPWAR	deployed for Desert Shield/Desert Storm	-
	SEADUTY	sea time as a percentage of total time on active duty	-

Source: Author

V. RESULTS

This section of the thesis presents the results of the logistic regression analyses on each of the three junior Naval officer samples: single male, married male, and female. The three models are discussed in terms of goodness-of-fit of the model to the data and statistical results of the equations.

The LOGISTIC Procedure in the SAS system provides several diagnostics for determining the overall goodness-of-fit of a model, among them the -2 Log Likelihood statistic and the Hosmer and Lemeshow test. The -2 Log Likelihood statistic has a chi-square distribution under the null hypothesis that all the regression coefficients of the model are zero. If a significant probability value ($p<0.5$) is obtained, the null hypothesis is rejected and it is concluded that the model has some explanatory power. [Ref. 28]

In 1989, Hosmer and Lemeshow developed a goodness-of-fit test for logistic regression models with binary responses. [Ref. 29] The test divides the data into approximately ten groups of equal size based on percentiles of the estimated probabilities. The observations are sorted in increasing order of their estimated probability of having an event outcome. The differences between the observed and expected number of observations in the groups are summarized by the Pearson chi-square statistic. The test statistic is compared to the chi-square distribution under the null hypothesis that the model provides a good fit to the data. If the associated probability value is large, it is concluded that the model provides a good fit.

A classification table uses a logistic regression model to classify observations as events or nonevents or, in this case, as *careerists* or *non-careerists*. A prediction is considered correct when the actual outcome and the predicted outcome are the same.

The CTABLE option in the SAS procedure PROC LOGISTIC provides several measures of the predictive accuracy of the model. Sensitivity is a ratio consisting of the number of careerists correctly classified by the model over the actual number of careerists. Specificity is a ratio of the number of non-careerists correctly classified by the model over the actual number of non-careerists. [Ref. 28] In this study, criteria for establishing probability cut points for assignment of respondents into predicted careerists or non-careerists were determined by using the ratio of actual careerists over the total number of observations. For example, the ratio of actual careerists over the total number of observations for the single male data set was 0.434. In constructing the classification table for this sample, individuals with predicted probabilities below this cut point were predicted to be non-careerists, while those above it were predicted to be careerists.

A unique aspect of this study was that the usefulness of the model was also measured using the matched, actual retention data from June 1, 1996. A frequency table was created by cross tabulating the predicted number of careerists from the model (using 1992 data) with the actual 1996 retention data. This provides the number (as a percentage) of those careerists the model predicted would stay who actually were on active duty four years later. This measure shows how well the model of predicted intentions explained actual retention behavior of junior officers, given the values of the selected explanatory variables. This measure is affected by both the goodness-of-fit of the 1992 model of careerist intentions and the stability of 1992 intentions with subsequent 1996 actual behavior.

A. SINGLE MALE LOGISTIC MODEL

1. Goodness-of-Fit

The logistic regression model for the single male officers had a -2 Log L Chi-square score of 60.4 with 12 degrees of freedom and was significant at the one percent level. The Hosmer and Lemeshow goodness-of-fit statistic was 12.2 with a probability value of 0.14, leading to the conclusion that the model fits the data well. The model correctly predicted 70.8 percent of the individual officers who intended to make the Navy a career (sensitivity) and 63.8 percent of those officers who did not intend to make the Navy a career (specificity). Overall, the model correctly predicted 66.9 percent of the career intentions of the single male junior Naval officer sample.

2. Statistically Significant Explanatory Variables

The logistic regression results are shown in Table 5.1. Of the twelve explanatory variables, seven were statistically significant: INTRINSIC, EXTRINSIC, JOBLOSS, STABILITY, OCS, SUB and DEPWAR. The signs of the significant variables supported a priori expectations.

Table 5.1. Logistic Regression Results - Single Male officers

Variable	Beta	Std. Error	P-Value
INTERCEPT	1.600	1.237	0.196
INTRINSIC**	0.546	0.251	0.030
EXTRINSIC*	0.373	0.221	0.091
JOBLOSS*	0.363	0.211	0.085
STABILITY***	0.948	0.242	0.001
JOBSIT	-0.047	0.191	0.807
CIVSKILL	-0.263	0.211	0.214
OCS*	-0.907	0.518	0.080
USNA	0.219	0.477	0.646
SWO	-0.293	0.538	0.586
SUB**	-1.420	0.689	0.039
DEPWAR*	-0.782	0.439	0.075
SEADUTY	-0.263	1.030	0.793

* Significant at the ten percent level
** Significant at the five percent level
*** Significant at the one percent level

Source: Author

INTRINSIC was significant at the five percent level and had a positive effect on career intentions. The composite dimension for INTRINSIC was "intrinsic job satisfiers", including satisfaction with current job, working conditions, coworkers, and acquaintances.

EXTRINSIC and JOBLOSS were significant at the ten percent level and had positive effects on career intentions. The composite dimension for EXTRINSIC was "extrinsic job satisfiers", including satisfaction with job security, promotion opportunity, job training, retirement benefits, and pay. The composite dimension for JOBLOSS was "job loss concerns due to force draw down", including concerns about finding civilian employment, the financial burden associated with being involuntarily separated from the Navy, and concern for the type of work the individual would obtain. STABILITY was significant at the one percent level and was positively signed. The composite dimension

for STABILITY was "job stability concerns due to force draw down" including concern for long term opportunities in the Navy.

The variable OCS was significant at the ten percent level and had a negative effect on career intentions. This supported a priori expectations that these single male officers were less likely to have long-term career intentions in the military when compared to officers who received their commission through ROTC.

The variable SUB was significant at the five percent level and had a negative sign. The sign of this variable supported expectations that submarine warfare officers were less likely to be careerists than aviation warfare officers. One reason for this could be that submarine warfare officers receive extensive training in nuclear engineering, a skill that is highly transferable to civilian employment. These individuals would therefore perceive their external job opportunities as greater than those of aviation warfare officers, resulting in a decreased likelihood of them being a careerist. Another possible reason for the negative career intentions of submarine warfare officers is due to the nature of submarine duty. Submarines are well known for cramped quarters and confined spaces. Deployments consist of long periods submerged underwater and few, if any, port visits. The perceived arduous nature of submarine duty, compared to aviation and surface warfare officers, may well result in the decreased likelihood of submarine warfare officers being careerists.

The variable DEPWAR was significant at the ten percent level and had a negative effect on career intentions. The sign and significance of this variable suggest that single male officers who were deployed for Desert Shield/Desert Storm were less likely to be career Naval officers than single male officers who were not deployed for the Gulf War. It

was hypothesized in Chapter IV that individuals identify both positive and negative aspects associated with deploying for war. In the case of the single male officers who deployed for the Gulf War, the negative aspects outweighed the positive, resulting in a decreased likelihood of them being a careerist.

3. Statistically Non-Significant Explanatory Variables

The source of stress due to job situation variable, JOBSIT, was not significant. These single male officers may have been so well prepared for the rigorous demands of the military lifestyle that job related stress was not a factor in their decision to make the Navy a career.

The lack of significance of the variable CIVSKILL could be attributed to the lack of variability in the response to the survey question used to create this variable. More than 80 percent of the sample agreed to some degree that their military skills would be helpful in obtaining civilian employment.

The lack of significance of the commissioning source variable, USNA, means that officers commissioned form this source do not differ significantly from the base case, ROTC. The lack of significance of this variable could be attributed to the similarities between these two commissioning programs. Both programs offer future officers a "realistic job preview" through midshipmen summer cruises aboard Naval vessels and other military activities. Both require an officer to make a service commitment to the Navy prior to graduating from college. In other words, officers commissioned through the ROTC and USNA programs may be similarly "committed" to a Naval career before being commissioned.

The warfare designator variable SWO was not significant. This could be attributed to the types of jobs to which surface warfare officers are assigned. The SWOs in this study were all within their minimum service requirement and would have therefore been junior division officers. Although the general managerial skills acquired in these jobs would be transferable to the civilian labor market, no specific aspect of these officers' training would be easily transferable to the civilian labor market. Aviation warfare officers' flight training and submarine officers' nuclear engineering training, on the other hand, would be directly transferable to the civilian labor market.

The variable, SEADUTY, was not significant. A higher percentage of the officers in the single male sample were aviation warfare officers who, more than likely, were still in a training command and had not had much sea time. Likewise, the submarine and surface warfare officers were very junior and were still serving in their initial obligations. These officers may not have had enough sea time to form strong positive or negative feelings for sea duty. Another reason for the lack of significance of this variable could be due to the interaction of this variable with one or more of the warfare designator variables and/or the commissioning source variables. This was not evident, however, from a simple correlation table.

4. Partial Effects

Due to the non-linearity of the logit function, the effects of changes in the explanatory variables are difficult to determine. A more practical approach is to evaluate the coefficients in terms of their partial effects. Using this technique, the relative contributions of each significant explanatory variable are measured by altering the values of the variables one at a time compared to a "base case" individual. This provides a

measure of the impact of change in an explanatory variable on the career intention of a notional individual. [Ref. 30]

Partial effects for the significant variables in the single male model are provided in Table 5.2. The referent or "base case" single male officer was commissioned through the ROTC program, was an aviation warfare officer, and had not deployed for Desert Shield/Desert Storm. His level of satisfaction with intrinsic and extrinsic job satisfiers were at the mean levels for the sample. His employment concerns due to force draw down was also at the mean level for the sample. His amount of sea time as a percentage of his total time in the service was at the mean level for the sample. The resultant estimated probability that a single officer with these characteristics intended to make the Navy a career was 0.57.

Table 5.2. Partial Effects of Significant Explanatory Variables - Single Male model

Variable	Partial Effect
Probability of being Careerist: 0.57	
INTRINSIC	0.13
EXTRINSIC	0.09
JOBLOSS	0.09
STABILITY	0.20
OCS	-0.22
SUB	-0.33
DEPWAR	-0.19

Source: Author

A one standard deviation increase in the component score for the composite intrinsic job satisfiers was associated with a 13 percent increase in the likelihood that the individual would be a careerist. Similarly, a one standard deviation increase in the component score for the composite extrinsic job satisfiers and for the composite future employment concerns associated with the force draw down was associated with a 9

percent increase in the likelihood of the individual being a careerist. A one standard deviation increase in the component score for the composite employment stability concerns due to force draw down was associated with a 20 percent increase in the likelihood of the individual being a careerist. A single male officer who received his commission through the OCS program was 22 percent less likely to be a careerist than an officer commissioned through the ROTC program. A single male submarine warfare officer was 33 percent less likely to be a careerist than an aviation warfare officer. A single male officer who deployed for Desert Shield/Desert Storm was 19 percent less likely to be a careerist than a single male officer who did not deploy for Desert Shield/Desert Storm.

5. The Use of Intentional Data to Model Actual Behavior

One of the opportunities the matched retention data presented for study was the use of this model and intentional data to predict actual behavior. A good indicator of voluntary turnover for military officers is career intent. [Ref. 7] One of the things that would make this model of career intentions useful to manpower planners would be for them to be able to use it to predict the subsequent actual retention behavior of a selected group of officers based on responses to selected survey questions. The matched retention data provided a tool for measuring how effectively the intentional model estimated in this study predicted actual subsequent retention behavior.

A frequency table, Table 5.3, was constructed by cross tabulating the predicted number of careerists from the intentional model with the actual 1996 retention data. Of those single male officers the model predicted would be careerists, 76.7 percent were on active duty four years later at the time of the data match by DMDC. In other words, of

the 86 single male officers the model predicted would be careerists, 66 of them were still on active duty four years later. Similarly, of the 80 single male officers the model predicted would be non-careerists, 51 of them (63.8 percent) had left the Navy.

Table 5.3. Actual Retention vs. Predicted Careerists - Single Male officers

Actual Retention 01June96	**Predicted** Careerist	**Predicted** Non-Careerist	Total
Stayer	76.7% (66)	36.3% (29)	95
Non-Stayer	23.3% (20)	63.8% (51)	71
Total	86	80	166

Source: Author

A second frequency table, Table 5.4, was constructed by cross tabulating the predicted number of careerists from the intentional model with the actual number of careerists from the intentional model. This provided the number and percent of those careerists the model predicted would be careerists who were actually careerists. (A *careerist* is defined as an officer who intended to stay in the Navy twenty or more years.) Of those single male officers the model predicted would be careerists, 62.8 percent were actually careerists. In other words, of the 86 single male officers the model predicted would be careerists, 54 of them were actually careerists. Similarly, of the 80 single male officers the model predicted would be non-careerists, 62 of them (77.5 percent) were non-careerists.

Table 5.4. Actual intentions vs. Predicted intentions - Single male officers.

Actual Intentions	**Predicted Intentions** Careerist	**Predicted Intentions** Non-Careerist	Total
Careerist	62.8% (54)	22.5% (18)	72
Non-Careerist	37.2% (32)	77.5% (62)	94
Total	86	80	166

Source: Author

The percentage of careerists predicted by the model versus the actual number of careerists was lower than the percentage of careerists predicted by the model versus subsequent actual behavior. The percentage of non-careerists predicted by the model versus the actual number of careerists was higher than the percentage of non-careerists predicted by the model versus subsequent actual behavior. Overall, these results empirically support the use of individual level intentional data to predict subsequent actual retention behavior.

B. MARRIED MALE LOGISTIC MODEL

1. Goodness-of-Fit

The logistic regression model for the married male officers had a -2 Log L Chi-square score of 63.8 with 13 degrees of freedom and was significant at the one percent level. The Hosmer and Lemeshow goodness-of-fit statistic was 9.4 with a probability value of 0.31, leading to the conclusion that the model fits the data well. The model correctly predicted 62.9 percent of the individual officers who intended to make the Navy a career (sensitivity) and 67.6 percent of those officers who did not intend to make the Navy a career (specificity). Overall, the model correctly predicted 65.7 percent of the male married officer sample.

2. Statistically Significant Explanatory Variables

The logistic regression results are shown in Table 5.5. Of the thirteen explanatory variables, six were statistically significant: INTRINSIC, EXTRINSIC, STABILITY, CIVSKILL, CHILDREN and USNA. The signs of the significant variables supported a priori expectations.

Table 5.5. Logistic Regression Results - Married Male officers

Variable	Beta	Std. Error	P-Value
INTERCEPT	0.405	0.819	0.621
INTRINSIC***	0.891	0.205	0.001
EXTRINSIC**	0.408	0.182	0.025
JOBLOSS	0.075	0.172	0.665
STABILITY***	0.854	0.198	0.001
PERSTRESS	-0.071	0.165	0.669
JOBSTRESS	0.079	0.167	0.635
CIVSKILL*	-0.331	0.183	0.070
CHILDREN**	0.696	0.328	0.033
OCS	0.198	0.386	0.608
USNA*	0.702	0.411	0.088
SWO	-0.465	0.419	0.268
SUB	-0.753	0.520	0.148
DEPWAR	0.017	0.339	0.960

* Significant at the ten percent level
** Significant at the five percent level
*** Significant at the one percent level

Source: Author

INTRINSIC was significant at the one percent level and had a positive effect on career intentions. The composite dimension for INTRINSIC was "intrinsic job satisfiers" including satisfaction with coworkers and acquaintances, job assignment, and working conditions. EXTRINSIC was significant at the five percent level and had a positive effect on career intentions. The composite dimension for EXTRINSIC was "extrinsic job satisfiers" including satisfaction with promotion opportunity, retirement benefits, pay, and job training. STABILITY was significant at the one percent level and was positively signed. The composite dimension for STABILITY was "job stability concerns due to draw down" including concerns about long term career opportunities in the Navy.

The variable CIVSKILL was significant at the ten percent level and had a negative effect on career intentions. This supported a priori expectations that married male officers

who perceived that their military skills would be helpful to them in obtaining civilian employment were less likely to remain in the military for a twenty or more year career.

The variable CHILDREN was significant at the five percent level and had a positive sign. The sign of this variable supported expectations that married male officers with children were more likely to remain in the Navy than married male officers without children.

The variable USNA was significant at the ten percent level and had a positive effect on career intentions. The sign and significance of this variable suggested that male married officers who were commissioned through the Naval Academy were more likely to be career Naval officers than those commissioned through the ROTC program.

3. Statistically Non-Significant Explanatory Variables

Seven of the thirteen explanatory variables in the married male model were not significant. JOBLOSS, whose composite dimension was "job loss concerns due to force reduction" was not significant. The components of this variable include concerns about finding employment and the associated financial burden if the member was forced to leave the Navy. One explanation for this is that these junior officers were not concerned with force reduction because most of the force reduction cuts were aimed at middle to upper ranking officers, i.e. lieutenant commanders and above. Since the officers in this study were serving in their initial obligation, many may have felt that force reduction cuts were not applicable to them. PERSTRESS and JOBSTRESS also lacked significance. The composite dimensions of these variables were "sources of stress due to job situation" and "personal sources of stress", respectively. The lack of significance of the sources of stress due to their job may suggest that these officers had not been in the Navy long enough to

experience long periods of time away from their family and other stress related to separation and deployments. PERSTRESS consisted of the components stress due to personal health and stress due to personal safety. The officers in this study were relatively young and must be in good health in order to be in the Navy. The lack of significance of this variable suggests that, at this stage of their military career, health and personal safety were not issues these individuals considered important in their career intentions decision.

The commissioning source variable OCS was not significant. Officers who received their commission through Officer Candidate School more than likely attended civilian colleges and had civilian jobs prior to becoming officers. The lack of significance of this variable could be attributed to these individuals' ambiguous career intentions. Some individuals may have felt that the military was their last hope for employment; career intentions would be positive for them. Others may join the military to obtain specific training and education which may be helpful to them in gaining civilian employment. These contradictory motivations may have caused this variable to lack significance.

The warfare designator dummy variables, SWO and SUB, were not significant. This means that holding the values of the other variables constant, male married officers of the three warfare areas had similar career intentions. Although not evident from a simple correlation table, one explanation for this could be the interaction of these variables with DEPWAR and/or the commissioning source variables.

The dummy variable, DEPWAR, measuring whether or not an officer had deployed for Desert Shield/Desert Storm, was not significant. The lack of significance of this variable suggests that career intentions of married male officers who were deployed for the Gulf War were not significantly different from those who were not deployed. One

explanation for this is that, for these individuals, the positive and negative aspects of deploying for war "balanced" each other, causing this variable to lack significance among married male officers. It is possible that for these officers, the perceived positive effect of deploying for war on their future careers "balanced" the negative aspects of family separation and arduous conditions.

4. Partial Effects

Partial effects for the significant variables in the married male model are provided in Table 5.6. The referent or "base case" married male officer was commissioned through the ROTC program, was an aviation warfare officer, had no children, and had not deployed for Desert Shield/Desert Storm. His level of satisfaction with intrinsic and extrinsic job satisfiers, employment concerns due to force draw down, and sources of stress were at the mean levels for the sample. The resultant estimated probability that a married male officer with these characteristics intended to make the Navy a career was 0.29.

Table 5.6. Partial Effects of Significant Explanatory Variables - Married Male model

Variable	Partial Effect
Probability of being Careerist: 0.29	
INTRINSIC	0.21
EXTRINSIC	0.09
STABILITY	0.20
CIVSKILL	-0.06
CHILDREN	0.16
USNA	0.16

Source: Author

A one standard deviation increase in the component score for the composite intrinsic job satisfiers was associated with a 21 percent increase in the likelihood that the individual would be a careerist. Similarly, a one standard deviation increase in the

component score for the composite extrinsic job satisfiers was associated with a 9 percent increase in the likelihood of the individual being a careerist. A one standard deviation increase in the component score for the composite employment stability concerns due to force draw down was associated with a 20 percent increase in the likelihood of the individual being a careerist. A one standard deviation increase in an officer's perception of the transferability of his military skills to civilian employment was associated with a 6 percent decrease in the likelihood of the individual indicating long-term career intentions. A married officer who had children was 16 percent more likely to be a careerist than a married male officer who did not have children. Finally, an officer who received his commission through the Naval Academy was 16 percent more likely to indicate long-term career intentions than a married officer commissioned through the ROTC program.

5. The Use of Intentional Data to Model Actual Behavior

Of those married male officers the model predicted would be careerists, 65.2 percent were on active duty four years later at the time of the data match by DMDC. In other words, of the 112 married male officers the model predicted would be careerists, 73 of them were still on active duty four years later. Similarly, of the 130 married male officers the model predicted would not be careerists, 60 of them (46.2 percent) had left the Navy. Table 5.7 summarizes the predicted careerists and actual retention data.

Table 5.7. Actual Retention vs. Predicted Careerists - Married Male data

Actual Retention 01June96	**Predicted** Careerist	**Predicted** Non-Careerist	Total
Stayer	65.2% (73)	53.6% (70)	143
Non-Stayer	34.8% (39)	46.2% (60)	99
Total	112	130	242

Source: Author

A second frequency table, Table 5.8, was constructed by cross tabulating the predicted number of careerists from the intentional model with the actual number of careerists from the intentional model. This provided the number and percent, of those careerists the model predicted would be careerists and who were actually careerists. (A *careerist* is defined as an officer who intended to stay in the Navy twenty or more years.) Of those married male officers the model predicted would be careerists, 60.7 percent were actually careerists. In other words, of the 112 married male officers the model predicted would be careerists, 68 of them were actually careerists. Similarly, of the 130 married male officers the model predicted would be non-careerists, 101 of them (77.7 percent) were non-careerists.

Table 5.8. Actual intentions vs. Predicted intentions - Married male officers.

Actual Intentions	**Predicted Intentions** Careerist	**Predicted Intentions** Non-Careerist	Total
Careerist	60.7% (68)	22.3% (29)	97
Non-Careerist	39.3% (44)	77.7% (101)	145
Total	112	130	242

Source: Author

The percentage of careerists predicted by the model versus the actual number of careerists was lower than the percentage of careerists predicted by the model versus subsequent actual behavior. The percentage of non-careerists predicted by the model versus the actual number of careerists was higher than the percentage of non-careerists predicted by the model versus subsequent actual behavior. Overall, these results empirically support the use of individual level intentional data to predict subsequent actual retention behavior.

C. FEMALE LOGISTIC MODEL

Due to small sample size (N=82) the logistic regression results for the female data set should be interpreted with caution. The maximum likelihood estimation of the logit works best with large sample sizes. [Ref. 26] The small size of the female officer data set increases the likelihood of potential inconsistencies.

1. Goodness-of-Fit

The logistic regression model for the female officers had a -2 Log L Chi-square score of 30.2 with 11 degrees of freedom and was significant at the one percent level. The Hosmer and Lemeshow goodness-of-fit statistic was 8.5 with a probability value of 0.39, leading to the conclusion that the model fits the data with statistical significance. The model correctly predicted 59.3 percent of the individual officers who intended to make the Navy a career (sensitivity) and 56.4 percent of those officers who did not intend to make the Navy a career (specificity). Overall, the model correctly predicted 57.3 percent of the female officer sample.

2. Statistically Significant Explanatory Variables

The logistic regression results are shown in Table 5.9. Of the eleven explanatory variables, four were statistically significant: JOBLOSS, STABILITY, DEPWAR, and SEADUTY.

JOBLOSS was significant at the five percent level, however, it had a negative sign which is opposite that of a priori expectations. The composite dimension for JOBLOSS was "job loss concerns due to force draw down." Components of this factor include concerns about finding civilian employment and the financial burden associated with being involuntarily separated from the Navy. Female officers who were concerned with being

Table 5.9. Logistic Regression Results - Female officers

Variable	Beta	Std. Error	P-Value
INTERCEPT	-0.384	1.577	0.808
INTRINSIC	0.115	0.350	0.744
EXTRINSIC	0.467	0.345	0.177
JOBLOSS**	-0.661	0.319	0.038
STABILITY***	1.401	0.438	0.001
JOBSIT	-0.067	0.263	0.799
CIVSKILL	-0.134	0.292	0.646
MARRIED	0.719	0.660	0.281
OCS	0.562	0.729	0.441
USNA	0.-0.017	0.748	0.982
DEPWAR**	1.540	0.738	0.037
SEADUTY**	-2.919	1.458	0.045

* Significant at the ten percent level
** Significant at the five percent level
*** Significant at the one percent level

Source: Author

involuntarily separated from the Navy may feel that they were "betrayed" by the Navy and were therefore less likely to be committed to the organization. [Ref. 20]

This lack of commitment could cause these officers to be less likely to indicate long-term career intentions. STABILITY was significant at the one percent level and had a positive effect on career intentions. The composite dimension for STABILITY was "job stability concerns due to draw down" including concerns about long term opportunities in the Navy due to force reduction. The sign of this variable suggests that female officers who were concerned about long term career opportunities in the Navy due to force reduction were more likely to indicate long-term career intentions.

The variable DEPWAR was significant at the five percent level, however its sign was positive, contrary to a priori expectations. The sign and significance of this variable suggest that female officers are more likely to indicate long term career intentions if they

were deployed for Desert Shield/Desert Storm. One explanation for this may be that, due to the Combat Exclusion Laws, females were not allowed to participate in direct combat roles. With minor exceptions, the jobs women participated in during the Gulf War were representative of their assignments in the peacetime military. [Ref. 31] For female officers then, deployment to the Gulf War would be no different than a routine deployment, with the exception that they were deployed in support of combat operations. These officers may feel that they are now more accepted as "warriors" and their career opportunities were better, having served in support of combat operations, therefore they were more likely to indicate long term career intentions.

The SEADUTY variable was significant at the five percent level and negatively signed, supporting a priori expectations that the arduous nature of sea duty and family separations due to sea tours have a negative effect on the long-term career intentions of female officers.

3. Statistically Non-Significant Explanatory Variables

Seven of the eleven explanatory variables in the female model were not statistically significant. INTRINSIC and EXTRINSIC, the intrinsic and extrinsic job satisfiers composites, lacked significance. The literature review supports the hypothesis that satisfaction with job attributes is significantly related to career intentions and retention. The lack of significance of these cognitive variables in this model was likely due to small sample size.

The source of stress due to job situation variable, JOBSIT, was not significant. These female officers "self-selected" themselves for military duty. They may have been so

well prepared for the rigorous demands of the military lifestyle that job related stress was not a factor in their decision to make the Navy a career.

The lack of significance of the variable, CIVSKILL, could be attributed to the lack of variability in the response to the survey question used to create this variable. More than 80 percent of the sample agreed to some degree that their military skills would be helpful in gaining civilian employment.

The variable, MARRIED, was not significant. Prior research in this area provided mixed results, especially in the military. The lack of significance in this model could be attributed to the fact that many of these officers had been in the Navy a relatively short time. They have not been fully exposed to the demands their job places on them, their spouse and their family.

The commissioning source variables, OCS and USNA, were not significant. This suggests that female officers' career intentions do not vary significantly with their commissioning source. One possible explanation for this is that , for these individuals, the choice of such a nontraditional career overwhelms the mode of entry.

4. Partial Effects

Partial effects for the significant variables in the female model are provided in Table 5.10. The referent or "base case" female officer was commissioned through the ROTC program, was single, had no children, and had not deployed for Desert Shield/Desert Storm. Her level of satisfaction with intrinsic and extrinsic job satisfiers, employment concerns due to force draw down, and sources of stress were at the mean levels for the sample. She had completed the sample mean amount of sea duty. The resultant estimated probability that she intended to make the Navy a career was 0.09.

Intuitively, this number seems low. These results should be interpreted with caution due to the small sample size.

Table 5.10. Partial Effects of Significant Explanatory Variables - Female model

Variable	Partial Effect
Probability of being Careerist: 0.09	
JOBLOSS	-0.05
STABILITY	0.20
DEPWAR	0.23
SEADUTY	-0.04

Source: Author

A one standard deviation increase in the component score for the composite variable JOBLOSS was associated with a 5 percent decrease in the likelihood of the individual being a careerist. A one standard deviation increase in the component score for the composite variable STABILITY was associated with a 20 percent increase in the likelihood of the referent individual indicating long-term career intent. A female officer who deployed for Desert Shield/Desert Storm was 23 percent more likely to indicate positive long-term career intentions than a female officer who did not deploy in support of the Gulf War. A one standard deviation increase in the amount of sea time a female officer completed was associated with a 4 percent decrease in the likelihood of that officer being a careerist compared to a female officer who had completed the sample mean amount of sea time.

5. The Use of Intentional Data to Model Actual Behavior

Of those officers the model predicted would be careerists, 56.8 percent of them were on active duty four years later at the time of the data match by DMDC. In other words, of the 37 officers the model predicted would be careerists, 21 of them were still on active duty four years later. Similarly, of the 45 officers the model predicted would not be

careerist, 30 of them (66.7 percent) had left the Navy. Table 5.11 summarizes the predicted careerists and actual retention data.

Table 5.11. Actual retention vs. Predicted intentions - Female Officer data

Actual Retention 01June96	**Predicted** Careerist	**Predicted** Non-Careerist	Total
Stayer	56.8% (21)	33.3% (15)	36
Non-Stayer	43.2% (16)	66.7% (30)	46
Total	37	45	82

Source: Author

A second frequency table, Table 5.12, was constructed by cross tabulating the predicted number of careerists from the intentional model with the actual number of careerists from the intentional model. This provided the number and percent of those careerists the model predicted would be careerists who were actually careerists. (A *careerist* is defined as an officer who intended to stay in the Navy twenty or more years.) Of those female officers the model predicted would be careerists, 56.8 percent were actually careerists. In other words, of the 37 female officers the model predicted would be careerists, 21 of them were actually careerists. Similarly, of the 45 female officers the model predicted would be non-careerists, 39 of them (86.8 percent) were non-careerists.

Table 5.12. Actual intentions vs. Predicted intentions - Female officers.

Actual Intentions	**Predicted Intentions** Careerist	**Predicted Intentions** Non-Careerist	Total
Careerist	56.8% (21)	13.3% (6)	27
Non-Careerist	43.2% (16)	86.7% (39)	55
Total	37	45	82

Source: Author

The percentage of careerists predicted by the model versus the actual number of careerists was the same as the percentage of careerists predicted by the model versus

subsequent actual behavior. The percentage of non-careerists predicted by the model versus the actual number of careerists was higher than the percentage of non-careerists predicted by the model versus subsequent actual behavior. Overall, these results empirically support the use of individual level intentional data to predict subsequent actual retention behavior.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

This thesis investigated those factors that influence the career intentions of junior URL Naval officers. A multivariate logistic model was estimated to determine the relative importance of internal work related, external work related, and personal explanatory variables on an individuals' intent to make the Navy a career. The explanatory power of the model was measured using matched, actual retention data to show how well the model of predicted intentions explained actual retention behavior.

The data for this study were drawn from the *1992 Department of Defense Survey of Officers and Enlisted Personnel and their Spouses.* The survey data were matched with the Active Duty Military Master and Loss File providing actual retention data as of June 1, 1996. The following restrictions were imposed on the data: Navy URL officers in pay grades O1 to O3, within their minimum service requirement at the time they took the survey in 1992. The data were divided into three sets: single male officers, married male officers, and female officers. A logistic regression model was estimated for each sample.

The analysis conducted confirms a number of findings from previous studies discussed in the literature review. There were, however, some distinct differences in the statistical significance and effects of various explanatory variables on career intentions among male and female officers and single and married male officers.

Only one variable was consistently statistically significant across all three data samples. STABILITY, which measured an individual's concern about his or her long-term opportunities in the military due to force draw down, was significant in the three data samples. An increase in an individual's concern about his or her long term

career opportunities in the Navy due to force draw down led to an increase in the likelihood of he or she being a careerist for single and married male officers, as well as for female officers. Intrinsic and extrinsic satisfiers were significant only in the male samples. Deployment for the Gulf War was significant only for female and single male officers. A number of variables were significant in only one sample. These results show the importance of conducting separate retention analyses for specific gender and marital status subsets of officers.

B. LIMITATIONS

One of the initial research questions of this thesis was to determine differences in career intentions due to race. The restricted data set contained only 3.8 percent minorities, too few observations to provide adequate dispersion for the logit regression model.

The small sample size (N=82) for the female data set is a concern. The logistic regression results of the model estimated for this sample should be interpreted with great caution and the conclusions drawn from this model should be treated as preliminary results requiring further verification.

The matched data set provided a good diagnostic tool with which to test how well the model of predicted intentions explained actual retention behavior. Since the matched data set captured actual retention only four years after the initial survey, one could question the validity of the test for drawing conclusions about long term career intentions. Further, the matched data do not capture events that occurred between the time of the survey and the time the data were matched. The data only provide information regarding an individual's status four years after the survey. It would be interesting, for example, to

know why an individual left the service, at what point in time he or she left, and what important factors changed for the officer during that period of time.

C. IMPLICATIONS

An increase in satisfaction with intrinsic and extrinsic job satisfiers was associated with an increase in the likelihood of single and married male officers being careerists. Intrinsic satisfiers included satisfaction with: current job, working conditions, coworkers, acquaintances, and job assignment. Extrinsic satisfiers included satisfaction with: job security, promotion opportunity, job training, retirement benefits, and pay. Based on analyses of partial effects for both the single and married male samples, intrinsic job satisfiers were relatively more important than extrinsic job satisfiers (Tables 5.3 and 5.8). This is an interesting result that should not be ignored by Navy policy makers. Historically, the Navy has tried to "fix" retention problems with monetary bonuses. The results of this study indicate that, although extrinsic satisfiers are important, perhaps more attention should be given to improving working conditions and the job assignment, or detailing process. Additionally, the Navy should continue its ongoing efforts to improve some of the extrinsic satisfiers as well.

Concerns due to force draw down and job stability were significant across all three data samples. For single male officers, concerns associated with the loss of their current job, including the ability to find civilian employment and the financial burden associated with job loss, were associated with an increase in the likelihood of the officer being a careerist. Job stability concern was associated with an increase in the likelihood of a single male officer being a careerist and was relatively more important than the concerns associated with the loss of their military job, based on an analysis of partial effects (Table

5.3). These variables are a proxy for an individuals' perception of his ability to obtain civilian employment. As his concern for his ability to obtain civilian employment increases, he is more likely to indicate positive career intentions.

For married male officers, job stability concern was associated with an increase in the likelihood of the individual being a careerist. A one standard deviation increase in a married male officers concern about his long-term opportunities in the military due to force draw down was associated with a 20 percent increase in the likelihood of the individual being a careerist.

For female officers, job stability concern also was associated with an increase in the likelihood of the individual being a careerist. However, job loss concern, including concern for finding a civilian job and the associated financial burden, was associated with a decrease in the likelihood of the individual being a careerist. This negative effect might be attributed to a lack of commitment to the organization due to a feeling of betrayal by the organization. The Navy had broken an implicit "contract" with individuals that were separated due to force draw down.

Separation from the military has many challenges associated with it and was a common concern among all the officers who participated in the survey. Most military members have not competed in the civilian labor force and have not established "civilian networks", often key to successful job hunts. The significance of the job stability concerns variable suggests that the Navy and DoD be clear and concise when communicating future draw down policies. Additionally, transition support and counseling services are an important part of taking care of those officers who do not survive personnel cuts. A

common sense approach to military separation is essential for the well-being of all military members. [Ref. 32]

The variable that measured whether an individual had deployed to Desert Shield/Desert Storm was significant in the single male officer model and in the female officer model. The associated effects on career intentions, however, differed in these two models.

Single male officers who deployed for the Gulf War were 19 percent less likely to indicate positive career intentions than those single officers who had not deployed. This was attributed to the high operational tempo associated with this deployment, which has become the norm for most operational warfare officers. Female officers who had deployed for the Gulf War, on the other hand, were 23 percent more likely to indicate positive career intentions then those female officers who had not deployed. The different effects of deploying for the Gulf War across all three samples warrant further study.

With the fiscal challenges facing today's military and the continued efforts to down size, high operational tempo is becoming the norm. In a recent Naval Personnel Research and Development survey, 64 percent of the officers surveyed were convinced their unit's missions requirements had increased as a result of down sizing. Additionally, 41 percent of the officers surveyed expected to spend significantly more time at sea on their next tour of duty to decreased manning levels. [Ref. 33] If high operational tempo is indeed a reality, the Navy and unit commanders should strive to improve off-duty time and time in port. Many officers accept the fact that they will spend long periods of time away from home, but feel that when they are home, they should be encouraged to spend time with family, not long working hours on ship.

Although the results of the female model should be interpreted with caution, they should not be ignored. The effect of deployment to Desert Shield/Desert Storm in the female model suggests that expanding the occupational eligibility for women in the Navy, and DoD, may increase the career intentions of female officers. Beginning in April 1993, the Department of Defense began a three phase process of assigning women to expanded combat roles, focusing on aviation, then surface combatants, then ground assignments. As a result, women are now eligible to be assigned to some 260,000 additional military positions. Approximately 80 percent of military jobs and 90 percent of career fields can now be filled by the best qualified individual, male or female. [Ref. 32]

As previously discussed, a number of variables were significant only in a particular sample. A more positive perception of the transferability of an officer's military skills to the civilian employment market was associated with a decreased likelihood of a married male officer being a careerist. A recent article in the Navy Times addressed the issue of retention of officers with specialized skills that are easily transferable to the civilian labor market. The Navy is considering various incentive pays in order to improve the retention of officers with these specialized skills [Ref. 34], a policy which the results of this thesis support.

Having children was associated with an increased likelihood of a married male officer being a careerist. As discussed in Chapter V, one reason for this may be due to the associated higher opportunity costs for these individuals to leave the service. Also, this result suggests that recent Navy efforts in the areas of quality of life for service members and their families are working. Improved Navy housing, medical care, and commissary

facilities result in a "healthy" military community, giving these officers further reason for remaining in the Navy.

Attending the US Naval Academy was associated with an increase in the likelihood of a married male officer being a careerist versus being commissioned through the ROTC program. Likewise, OCS, was associated with a decrease in the likelihood of a single male officer being a careerist. In recent years, the Navy has cut back on its officer accessions from OCS and relied solely upon accessions from the Naval Academy and ROTC. The sign and significance of this variable suggest that this is a prudent policy.

Being in the submarine warfare community was associated with a decrease in the likelihood of a single male officer being a careerist. These nuclear trained officers, historically, have had retention problems. The engineering training they receive makes them very marketable in the civilian labor market. As discussed earlier, these officers are being considered for an increase in incentive pay and bonuses in order to entice them to "stay Navy." The Navy should conduct further analysis of the Nuclear officer community to determine what, in fact, their needs are and what exactly an increased bonus would provide for them.

Sea duty was associated with a decrease in the likelihood of a female officer being a careerist. This result is disturbing because the Navy is opening more sea billets to female officers. Again, the results of the female logistic model need to be interpreted with caution. Further research is required in order to verify the results reported here.

D. AREAS OF FUTURE RESEARCH

The results reported in this thesis, by no means, provide a complete answer to the career intentions question. Some areas of follow-on research are discussed below.

Due to data restrictions, career intentions differences due to race were not studied. This is an area that definitely warrants further research. The Navy force demographic policy 12-12-5 (12 percent women, 12 percent Black, and 5 percent Hispanic) will require manpower planners to be able to predict and influence the career intentions of minority officers.

As discussed in the limitations section, it was impossible to determine from the matched data the specific reasons why an individual left the Navy. Further research in this area may confirm or compromise the results of this study. Additionally, the four year time frame may not be long enough to make conclusions about the use of predicted intentions to model actual behavior. There is room for follow-on research in this area.

The differences in the effect of the Desert Shield/Desert Storm deployment variable across gender and marital status is an interesting area of future research. Further study is required to validate the results of this thesis and to determine why the effects are different.

The independent variables in this multivariate model are not truly independent, rather there is some amount of interaction between the explanatory variables. The degree and effect of the interaction between the explanatory variables of the model estimated in this thesis is an interesting area of further research.

Finally, data restrictions severely limited the female data set. The conclusions in this study need to be further evaluated and verified before any policy implications can be

determined. The increasing career fields and military job openings for women will provide future researchers with larger data samples to analyze.

LIST OF REFERENCES

1. The Department of the Navy 1996 Posture Statement, Department of the Navy, Arlington, VA, 1996.

2. Office of the Undersecretary of Defense, *Defense Manpower Requirements Report FY 1996*, Chapter V.

3. Pearson, Cecil A., "The Turnover Process in Organizations: An Exploration of the Role of Met-Unmet Expectations," *Human Relations,* v. 48, pp.405-420, 1995.

4. McEvoy, G. W. and Cascio, W. F., "Strategies for Reducing Employee Turnover: A Meta-Analysis," *Journal of Applied Psychology*, v. 70, pp. 342-353, 1985.

5. Mobley, W. H., Griffeth, R. W., Hand, H. H., Meglino, B. M., "Review and Conceptual Analysis of the Employee Turnover Process," *Psychological Bulletin,* v. 86, No. 3, pp.493-522, 1979.

6. Cotton, J. and Tuttle, J., "Employee Turnover: A Meta-Analysis and Review with Implications for Research," *Academy of Management Review,* v. 11, No. 1, pp. 55-70, 1986.

7. Wilcove, Burch, Conroy, and Bruce. *Officer CareerDevelopment: A Review of the Civilian and Military Research Literature on Turnover and Retention,* Naval Personnel Research and Development Center Technical Note 91-23, San Diego, CA, September, 1991.

8. Lee, T. W. and Mitchell, T. R., "An Alternative Approach: The Unfolding Model of Voluntary Employee Turnover," *Academy of Management Review,* v. 19, No. 1, pp. 51-89, 1994.

9. March, J. and Simon, H., *Organizations.* New York: Wiley. 1958.

10. Arnold, H. and Feldman, D., "A Multivariate Analysis of the Determinants of Job Turnover," *Journal of Applied Psychology,* v. 67, No. 3, pp. 350-360, 1982.

11. Dreher, G. F., "The Role of Performance in the Turnover Process," *Academy of Management Journal,* v. 25, No. 1. pp.137-147, 1982.

12. Lee, T. W., Mitchell, T. R., Wise, L., and Fireman, S., "An Unfolding Model of Voluntary Employee Turnover," *Academy of Management Journal,* v. 39, pp. 5-36, 1996.

13. Bhagat, R. S., McQuaid, S. J., Lindholm, H. and Segovis, J., "Total Life Stress: A Multimethod Validation of the Construct and Its Effects on Organizationally Valued Outcomes and Withdrawal Behaviors," *Journal of Applied* Psychology, v. 70, pp. 202-214, 1985.

14. Hom, P. W., Caranikas-Walker, F., Prussia, G. E., and Griffeth, R. W., "A Meta-Analytical Structural Equations Analysis of a Model of Employee Turnover," *Journal of Applied Psychology,* v. 77, pp. 890-909, 1992.

15. Cook, T. M. and Morrison, R. F., *Surface Warfare Junior Officer Retention: Background and First Sea Tour Factors as Predictors of Continuance Beyond Obligated Service,* Naval Personnel Research and Development Center Technical Report 83-6, San Diego, CA., January, 1983.

16. Derr, C.B., *Career Anchors,* Naval Postgraduate School, Monterey, California, January, 1980.

17. Marsh, R. M., "Predicting Retention in the U.S. Navy: Officers and Enlisted," *Journal of Political and Military Sociology,* v. 17, pp. 1-26, 1989.

18. Lee, T. W., Ashford, S. J., Walsh, J. P., and Mowday, R. T., "Commitment Propensity, Organizational Commitment, and Voluntary Turnover: A Longitudinal Study of Organizational Entry Process," *Journal of Management,* v. 18, pp.15-32, 1992.

19. Ashcroft, R.J., *An Analysis of the Factors Affecting the Career Orientation of Junior URLOfficers,* Master's Thesis, Naval Postgraduate School, Monterey, California, June, 1987.

20. Wong, L. and McNally, J., "Downsizing the Army: Some Policy Implications Affecting the Survivors," *Armed Forces and Society,* v.20, pp. 199-216, 1994.

21. Evans, M. A., "Downsizing in the U.S. Army: Common Concerns of Survivors," *Journal of Political and Military Sociology,* v. 23, pp.271-287, 1995.

22. Defense Manpower Data Center, *The 1992 Surveys of Officers and Enlisted Personnel and their Spouses: Overview and Executive Summaries,* Arlington, VA., March, 1994.

23. Defense Manpower Data Center, *The 1992 DoD Survey of Officers and Enlisted Personnel,* Defense Manpower Data Center, Arlington, VA., 1992.

24. Bureau of Naval Personnel, *FY-92 Annual Report NAVPERS 15658(A),* Washington, D.C., September, 1992.

25. Bureau of Naval Personnel, *Navy Demographics.* [Online] Available http://www.bupers.navy.mil/, December, 1995.

26. Studenmund, A.H., *Using Econometrics: A Practical Guide (2nd ed.)*, pp. 510-534, Harper Collins Publishers, New York, New York, 1992.

27. Affifi, A. A., and Clark, *Computer Aided Multivariate Analysis (2nd ed.)*, pp371-428, Chapman and Hall, New York, New York, 1990.

28. SAS Institute Inc., *Logistic Rgression Examples Using the SAS System*, Version 6, First Edition, Cary, NC., SAS Institute Inc., 1995.

29. Hosmer, D. W. and Lemeshow S., *Applied Logistic Rgression*, John Wiley and Sons, New York, New York, 1989.

30. Kocher, K. M, and Thomas, G. W., "Retaining Army Nurses: A Longitudinal Model," *Research in Nursing and Health*, v. 17, pp. 59-65, 1994.

31. Binkin, Martin, *Who Will Fight the Next War? The Changing Face of the American Military*, p.18, The Brookings Institute, Washington, D.C., 1993.

32. Office of the Secretary of Defense, *Annual Report to the President and Congress*, Department of Defense, Washington, D.C., 1996.

33. Burlage, J. and Blazar, E., "Sounding Off: What You Say About Sea Duty, the Navy, Your Life," *Navy Times*, 26July96, Army Times Publishing, Washinton, D.C., 1996.

34. Burlage, J., "Paying Officers to Stay: Bonuses for Docs, SWOs, and Nukes,"*Navy Times*, 3March97, Army Times Publishing, Washington, D.C., 1997.

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